

AMERICAN ARTISAN

AUGUST
1942



RESIDENTIAL AIR CONDITIONING
ARM AIR HEATING • SHEET METAL CONTRACTING

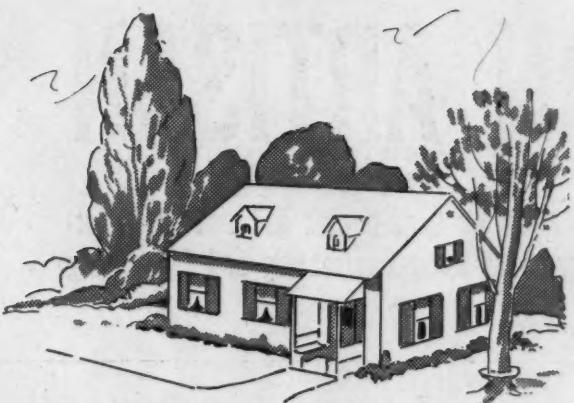
ESTABLISHED
1880



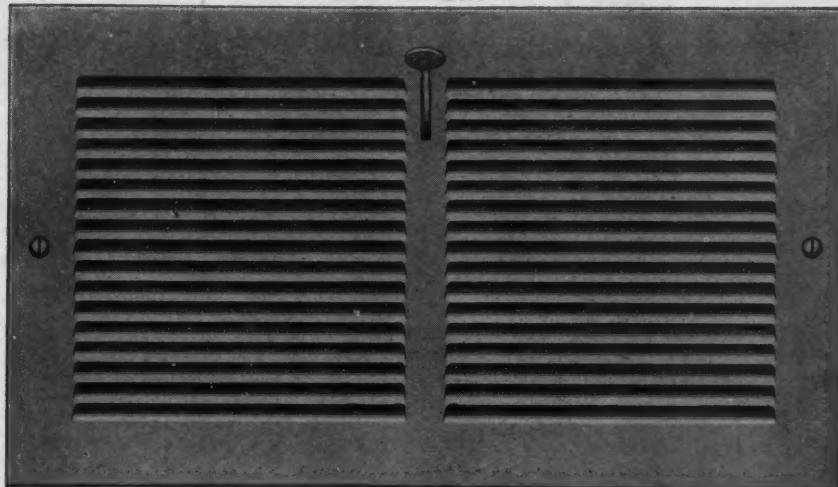
L A M N E C K
PREFABRICATED DUCT
AND FITTINGS
SIMPLIFIED FURNACE
PIPE AND FITTINGS
FOR ALL TYPES
OF RESIDENTIAL
GRAVITY AND FORCED
WARM AIR HEATING
AND AIR CONDITIONING
SYSTEMS

LAMNECK PRODUCTS, INC.

Middletown, Ohio



REGISTERs for Low-Cost Homes



No. 7032
Airo-Flex



Auer offers numerous types of warm air registers, simple in design but well built and efficient, which meet the cost requirements of the small home market. For any type of warm air heating system in single units or group housing, Auer is able to provide the appropriate model.

In many privately built or government-sponsored defense area housing projects, such dwellings are being equipped with the "7000" Airo-Flex Series Registers shown above. This is a high grade but inexpensive design with one-piece

face, and bendable fins adjustable at time of installation for up or down deflection. This register has a single shut-off louvre, ample free area, and pleasing appearance.

Other Auer models, such as Classic Wall and Baseboard Registers, Heat-Rite Registers, and DuraBilt Floor Registers and Cold Air Faces, are well adapted to use in smaller homes. In any of these products you have the assurance of excellent Auer quality.

Write for Auer Register Book showing all models for warm air and air conditioning, or for Catalog "G" on flat metal grilles.

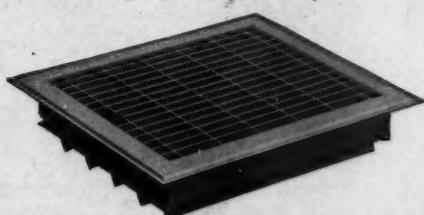


Fig. DR DuraBilt
Floor Register

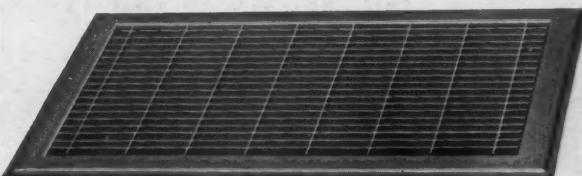


Fig. DSC DuraBilt
Intake

THE AUER REGISTER CO., Cleveland, Ohio

AUER REGISTERs
& GRILLES · For Air Conditioning and Gravity

AMERICAN ARTISAN

Covering All Activities in Residential Air Conditioning and Small Commercial Cooling, Warm Air Heating, Sheet Metal Contracting and Fabricating

WITH WHICH ARE MERGED

FURNACES
SHEET METALS

AND

Warm-Air
Heating

J. D. Wilder, Editor

A. A. Kennedy, Assistant Editor

Vol. 111, No. 8

August, 1942

Founded 1880

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In This Issue

THIS month's news from Washington is by comparison with last month, very much reduced in volume, but what it lacks in size is more than offset, we think, by the seriousness of the Amendment 6 to M-21-b which we discuss editorially on page 17.

We hope that every reader will study this order. Also that you will talk to your jobber about the situation and get his ideas on what can be done and, if possible, how to do it.

Jobbers we have talked to feel that unless something is done, there will be almost no sheets for the furnace-sheet metal contractor. The jobber has no alternative but to refuse orders with priority ratings under A-1-A.

We also understand that there is an additional hitch being enforced by some WPB offices—that the 5 per cent permitted must be taken out of the previous quarter's inventory.

This means that the jobber has to "save" his 5 per cent quota for one quarter in order to be able to sell his 5 per cent on A-10 during the following quarter.

There's some argument about this. Your jobber will probably have a ruling.

This month there was no startlingly new order to upset us—we have a breathing period in order to digest the avalanche which hit us last month. But we repeat Amendment 6 to M-21-b carries more dynamite than all the orders of last month.

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*"Now I got to sell
the Boss some War Bonds!"*

THE FRONT OFFICE asks the boss an' me how about mailin' their book on Inco Nickel Alloys to the trade? The Boss says, "Nix, sheet metal workers ain't bookworms." "Nuts, they don't have to be," I come back, "the dope in this book is just what the smartones are lookin' for."

"You ought to know," says the Boss, "but I have to be shown. Just turn up a couple of hundred that want it," he adds, "an' I'll put a whole month's pay into war bonds."

So here's your chance, fellers! Help me get this hunk of dough for Uncle Sam, an' I'll show you how to get ahead of the guy that's too tired to read. Here's how:

This book I'm tellin' you about has a front office handle on it . . . "Individualized INCO Nickel Alloys." But that name really means somethin'! For instance:

Did you know there's now *eight* metals in this family? You probably couldn't tell 'em apart, unless I told you how. Yet some of 'em are special free-cutting for fast production in screw machines. Others are made extra tough, hard, an' strong for things like P. T. boat shafts. Two are specially good for springs (valve springs an' etcetera) an' another is made to stand up against terrific heat.

In case you don't know it, these INCO Nickel Alloys in addition to Nickel itself are Monel, "K" Monel, "KR" Monel, "R" Monel, "S" Monel, Inconel an' "Z" Nickel. The book gives you dope on what they're made of, the difference between them, lots of pictures of the kind of jobs they're used for, an' also some idea of how to form, machine an' weld 'em, etc.

You want to get ahead . . . I want to

get that dough for Uncle Sam. O.K. . . let's get together. Put your mark on the coupon an' mail pronto.



TIM SHEARS,
c/o The International
Nickel Co., Inc.
67 Wall Street,
New York, N. Y.

Dear Tim:
Glad to have you send me that book on metals
. . . and I hope you sell the Boss some Bonds.

Name

Company

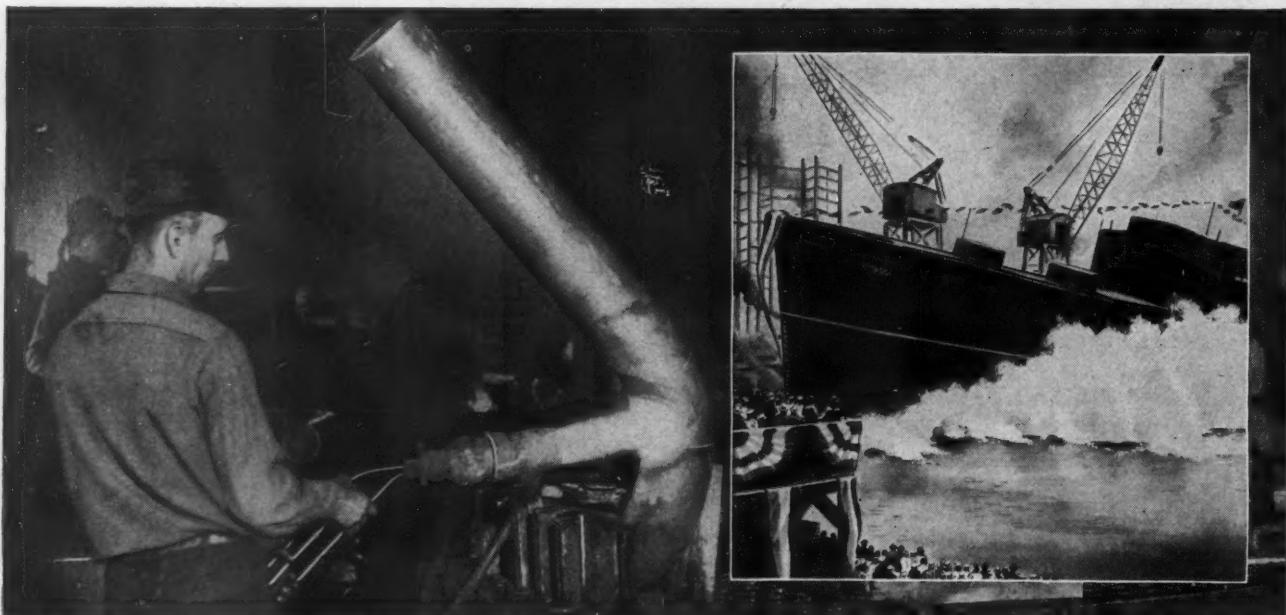
Address

A. A. 9-42



THE COPPER THAT YOU
MIGHT HAVE USED FOR
THIS CHIMNEY FLASHING...

Instead-
makes special copper tube
shapes like this for our merchant marine



TODAY, the long-lasting standby metal of your trade...copper... is needed for war production. We know you realize its importance in America's struggle for victory. Huge quantities are required for ammunition, for planes and tanks and ships.

Typical of the wartime applications for which copper is so vitally needed is this



special shaped tube of sheet copper for use on a new merchant vessel. Copper equipment in a hundred different forms is needed in large quantities and with the greatest speed to keep pace with our expanded shipbuilding program.

The time-honored properties of copper with which the sheet metal trade has so long

been familiar...rust immunity, corrosion resistance, heat conductivity and easy fabrication...these are the reasons why copper is in such great demand by our war essential industries.

THE AMERICAN BRASS COMPANY
General Offices: Waterbury, Connecticut
Subsidiary of Anaconda Copper Mining Company
In Canada: ANACONDA AMERICAN BRASS LTD.
New Toronto, Ont. 4227

Anaconda Copper



No. 210—the ACE of Floor Registers — one of a line that offers the ideal register for every type of wartime housing. Write for catalog No. 42.

•IMPORTANT IN PEACETIME. •VITAL IN WARTIME•

H&C has always taken great pride in its service.

Important as service is in peacetime, it is even more important in wartime. Delays cannot be tolerated. With its unmatched facilities for register production H&C can furnish registers for any project *in a hurry!* For both exceptional service and extra quality at competitive prices, *you can count on H&C!*

HART & COOLEY MANUFACTURING CO.

Warm Air Registers • Air Conditioning Grilles • Damper Regulator Sets • Dampers • Chain • Pulleys

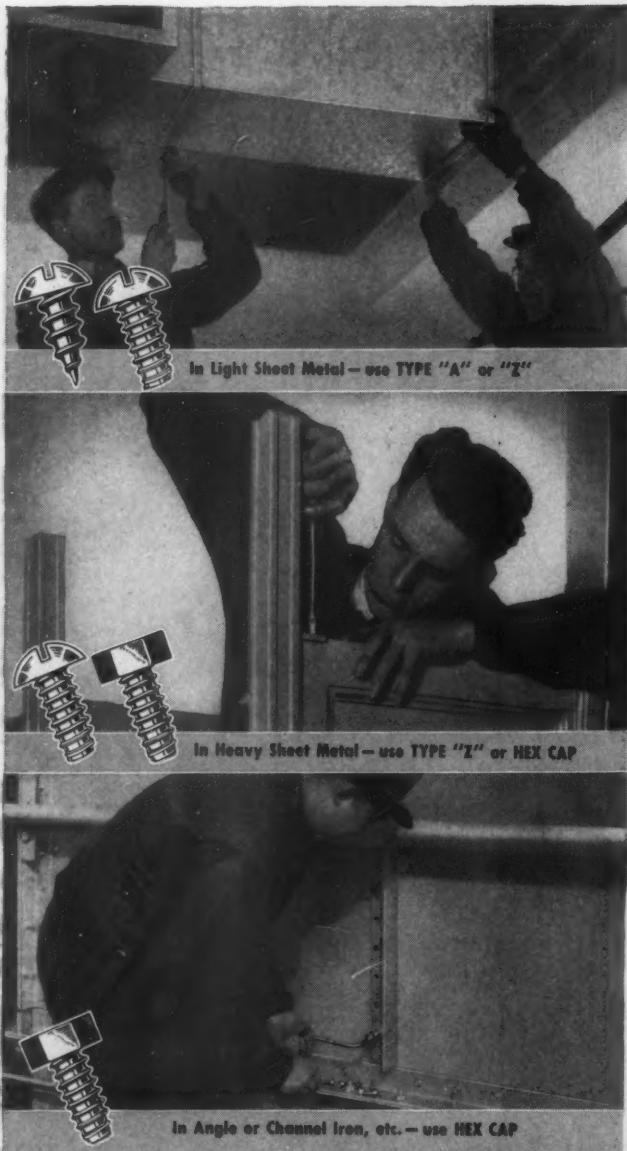
HOLLAND  MICHIGAN

Philadelphia Office 1600 Arch Street

Western Representatives Godfrey Rueger Co., Los Angeles, San Francisco, Portland, Seattle, Salt Lake City, Denver

To provide the maximum of service H&C maintains large stocks of standard items — ready for immediate delivery. Inquiries for housing projects are especially solicited.

P-K GIVES YOU THE *Right* TYPE



FOR *Every* JOB!

If you limit your use of Parker-Kalon Screws to *light* sheet metal fastenings, you're overlooking a bet. Because there's a type of Parker-Kalon Self-tapping Screw that will help you save valuable time and labor on every job — whether it's constructed of light or heavy sheet metal, angle iron, channel iron, etc.

Every type of P-K Self-tapping Screw eliminates tapping and all tap problems — saves time lost fumbling with bolts and nuts — does away with troublesome riveting in hard-to-get-at places.

And, remember you can be sure of greatest time and labor savings when you specify PARKER-KALON! Parker-Kalon's Quality-Control Laboratory protects you against "doubtful screws" — screws that *look* all right but some of which fail to *work* right. Begin now to realize the advantages which the right type of P-K Screw can make in your assembly work. Want free samples and recommendations? Write Parker-Kalon Corporation, 190-192 Varick Street, New York, N. Y.

PARKER-KALON
Quality-Controlled
SELF-TAPPING SCREWS

Give the Green Light  to War Assemblies

U.S. REGISTERS for WAR HOUSING



WHATEVER YOUR REGISTER NEEDS for Gravity or Air-Conditioning systems in war housing projects you'll find the Design, the Efficiency, and the Price that's Right in the complete U. S. Line. The styles shown are a few of the most popular Gravity and Air-Conditioning Registers.

No. 400 TRUSSTEEL Floor Register — a heel-proof maximum free area register of sturdy construction with multiple valves running short way for easier operation and cleaner walls.

No. 40 SERIES Gravity Baseboard Register — is especially adapted for conversion to air-conditioning systems. Made in all standard sizes — leak-proof — non-vision. Grille Bars may be set for Upward or Downward Flow of Air Stream if required.

No. 256 4-WAY FLOW AIR-CONDITIONING Register — provides all practical directional flows in a simple, sensible way that eliminates the obtrusional resistance features of most registers of this type.

No. 153 LOUVER-TYPE AIR-CONDITIONING Register — is the lowest cost directional flow non-vision register for Forced Air-Condition systems.

Write for our Latest Catalogs and Prices before ordering for that Housing Project.



UNITED STATES REGISTER CO.

BATTLE CREEK • MICHIGAN

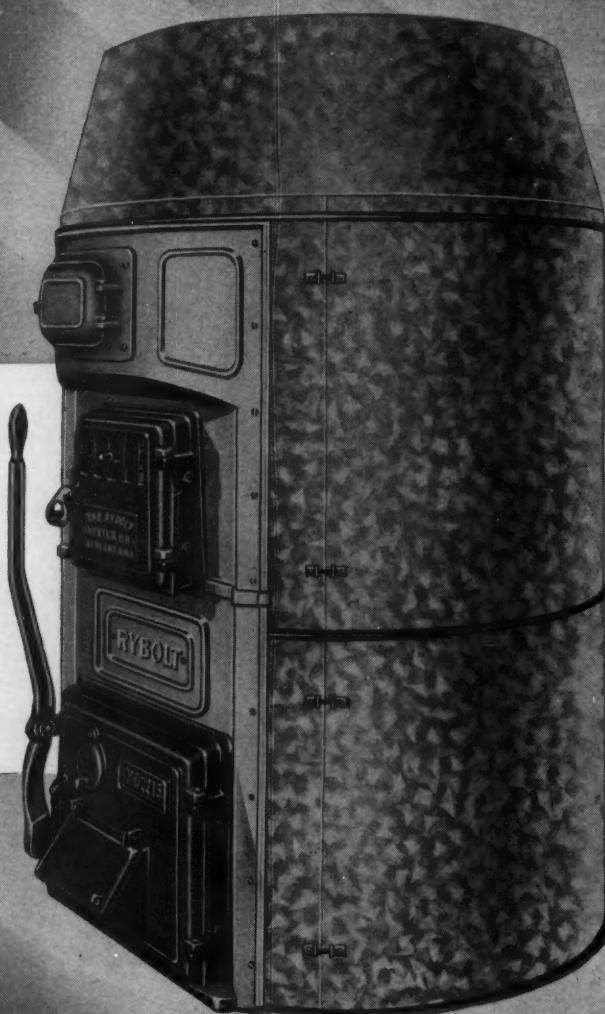
RYBOLT

Rybolt

SERIES 15

Cast Iron Coal-Fired
Gravity Furnace

4 SIZES



DEPENDABLE FOR *War-Time Business*



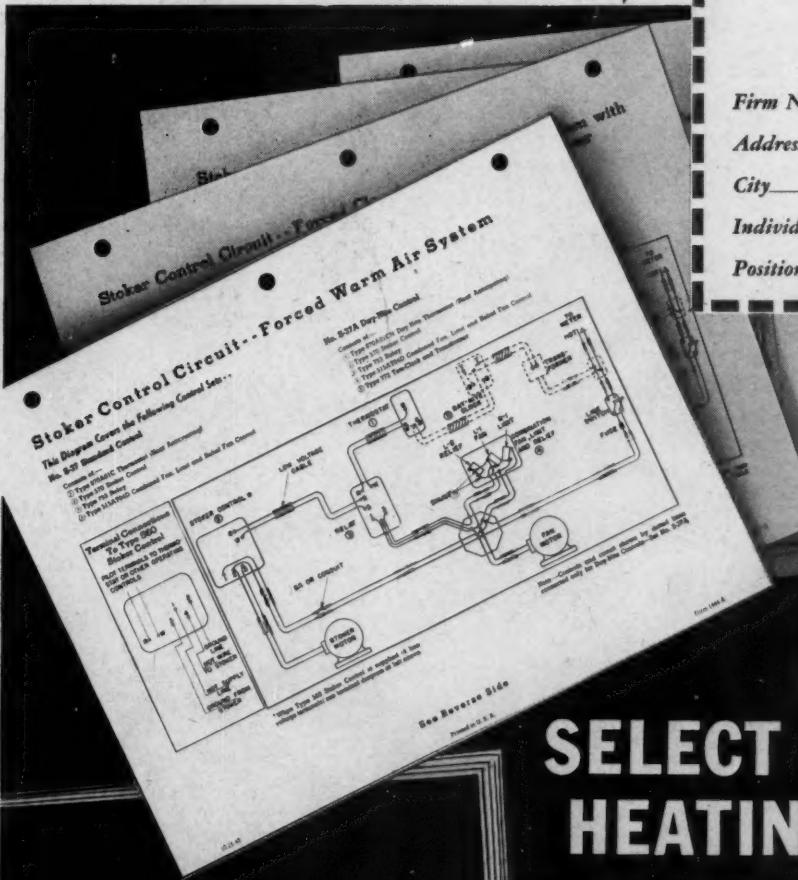
In war time, even more than in peacetime, the coal-fired gravity furnace far outranks any other heating unit in sales possibilities. With RYBOLT Series 15 there's worthwhile business to be had in replacement of worn out furnaces . . . in replacement of heating

units burning gas or oil . . . in remodeling of houses to provide additional living quarters for defense workers . . . possibly soon increased business in new war housing, according to revised government plans now being developed.

WRITE FOR DESCRIPTIVE FOLDER TODAY

THE RYBOLT HEATER COMPANY
615 MILLER STREET • ASHLAND, OHIO

MAIL COUPON
NOW FOR FREE
DIAGRAMS



Penn Electric Switch Co., Goshen, Indiana.

Gentlemen: Without obligation, please send ____ sets of control wiring diagrams for the following heating systems:

- Continuous Ignition Oil Burner
- Intermittent Ignition Oil Burner
- Stoker Gas Unit Heater
- Hand-Fired ... Damper Motor

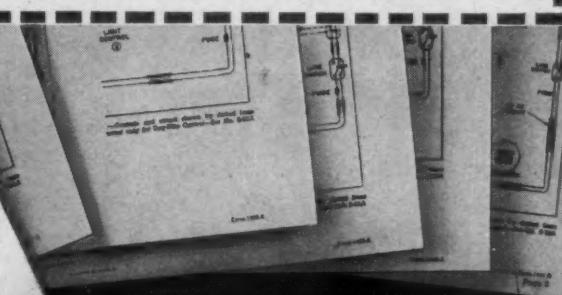
Firm Name _____

Address _____

City _____ State _____

Individual's Name _____

Position _____



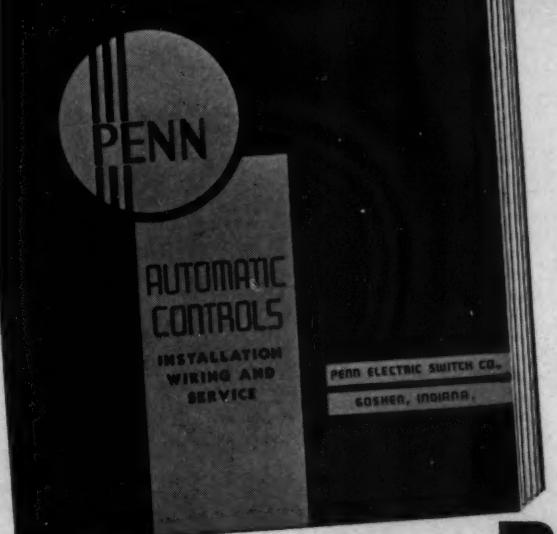
HOW TO SELECT AND INSTALL HEATING CONTROLS

HERE are clear, accurate, detailed and dependable directions covering controls for all types of heating systems . . . material of great practical value right now to service and installation men.

Seven basic sets of diagrams cover every kind of installation . . . every kind of fuel. Each individual diagram shows the external hook-up . . . lists and illustrates each separate control necessary to the system . . . explains the function and operating sequence of each control.

Now, when efficient heating and fuel economy are so vital, Penn offers this complete and helpful information to service and installation men absolutely free. These diagrams are helpful in selection of proper controls and following the diagrams insures a correct and efficient installation.

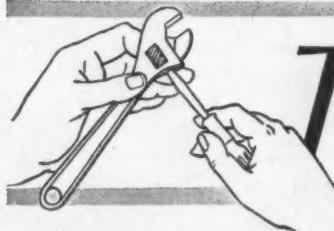
Check and mail coupon, or write now for diagrams you can use. They'll be sent promptly—in a neat looseleaf binder. *Penn Electric Switch Co., Goshen, Indiana.*



REFRIGERATION. AIR CONDITIONING. ENGINE,

HEATING. PUMPING AND AIR COMPRESSOR

CONTROLS



TOOL NOTES

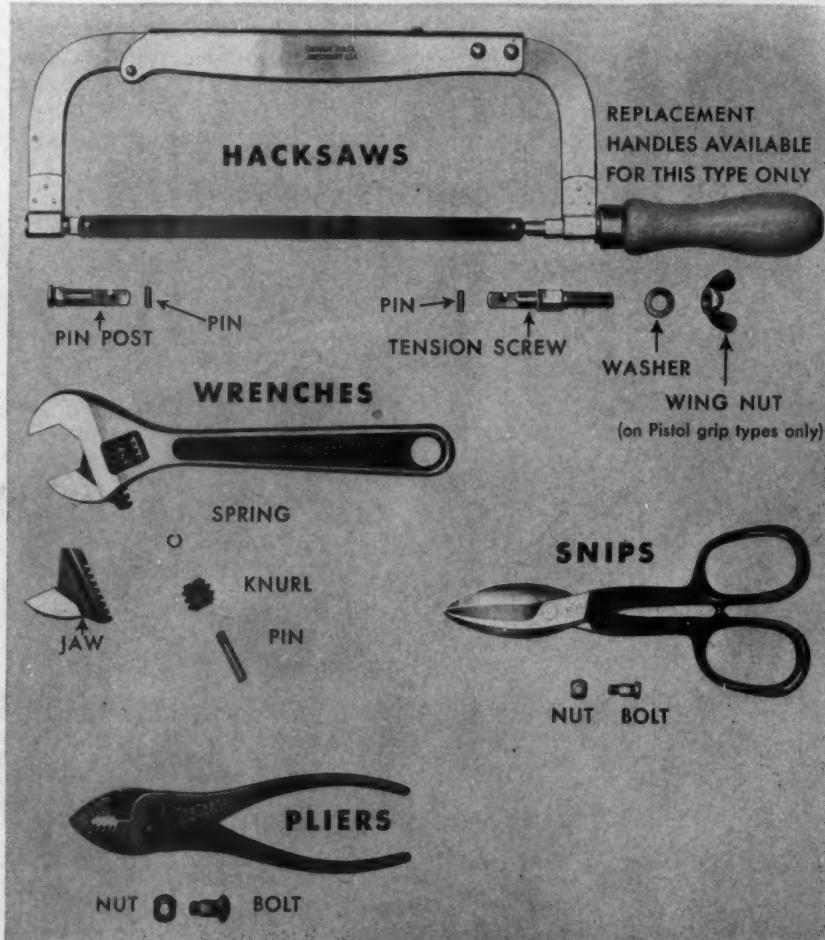
Maintenance
and Repair
Suggestions to
Prolong Tool Life

No. 3 GENUINE CRESCENT REPAIR PARTS PROLONG TOOL LIFE

Every tool user...from individual mechanic to large industrial plant ... can speed production and help the war effort by actively practicing tool conservation. With thousands upon thousands of new tools needed by our Army, Navy and Air Force, any effort which will prolong tool life now becomes doubly important.

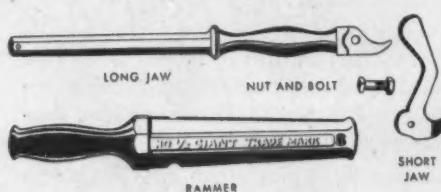
Genuine Crescent Parts are sold by Supply Houses in all sections of the country. The only information necessary for ordering is the name of the tool, its size or type, and the name of the part needed. The illustrations on this page give you the proper names of all parts.

In addition to the parts illustrated above, parts are also available for Crescent Nail Pullers. The illustration below



will enable you to identify the various nail puller parts. In ordering, give number of the nail puller and name the parts needed.

PARTS FOR NAIL PULLERS



CRESCE NT TOOL COMPANY, JAMESTOWN, N. Y.

CRESCE NT TOOLS
Give Wings to Work



THE FALL OF TROY

Intelligent advance preparation—work before the battle—has always weighed-heavily in the decision. The men who conceived and built the wooden horse prepared the way for Grecian victory.



FAMOUS BATTLES of modern times, too, can be won or lost behind the lines, before the battle. America is awake to the all-important part production plays in Victory. Fighting shoulder to shoulder with the brave men at the front, the workers in the Arsenals of Democracy are rendering an invaluable service. Getting this vital equipment where it is most urgently needed places a great responsibility, too, upon distributors and dealers. American Blower Distributors and Dealers are doing all in their power to speed deliveries, place Fans, Blowers, Unit Heaters and Ventilators where they are needed most, render prompt, dependable service to keep production lines rolling. You can always count on their cooperation.

AMERICAN BLOWER

AMERICAN BLOWER CORPORATION, DETROIT, MICHIGAN

In Canada: CANADIAN SIROCCO COMPANY, LTD., Windsor, Ont.

Division of AMERICAN Radiator and "Standard" Sanitary Corporation



"**E**" WE ARE PROUD that we of American Blower, through our efforts to produce quantities of vital equipment in the shortest possible time, have received the coveted Navy "E" Award for production.

An Open Letter to the ★ WARM AIR HEATING DEALERS OF AMERICA:

A great and grave responsibility has been placed in your hands as a result of this War. The families of our fighting men must be kept warm and comfortable during the next heating season . . . their morale must be kept at the highest possible peak, so that their efforts will keep our boys going on their respective fronts. THIS IS YOUR JOB.

To successfully accomplish this necessary service to our government and your customers you should abide by the following rules:

1. Inform all home owners that NOW is the time to check their furnaces. Do not wait. Materials for repairs are available, and in case of Wise furnaces get the original repairs from the original manufacturers.
2. REPAIR every furnace possible. Use new parts ONLY where absolutely necessary. Make a scrap heap of old and unused metals and return them to the government.
3. Conserve all iron and steel. Do not install a new furnace unless the old one is positively beyond repair.
4. If beyond repair, new furnaces are available under Preference Rating Order P-84.

By following these rules and keeping the furnaces of American Homes in top-notch condition, you will be helping our government tremendously.

So again we suggest, check with your customers on their furnaces NOW! The Wise Furnace Company can supply promptly the ORIGINAL PARTS made to fit Wise Furnaces . . . they are the ones to use . . . they may be purchased direct from the manufacturer.

YOURS FOR VICTORY,
★ The WISE FURNACE Co.
AKRON, OHIO

How much SCRAP can you mobilize every week?



UNITED STATES STEEL

THE plain fact is—we can't win this war without plenty of steel. But if we are to have plenty, all factories, mills, shops, mines and other units of American industry must organize at once to turn in every available pound of scrap metal—and keep on turning it in regularly. At least six million tons more scrap must be collected than last year!

Where is this "extra" scrap?

It is certain that vast quantities of precious iron and steel lie idle in unsuspected hiding places throughout the country. Part of it may be on your premises. The usual methods of collection will not release enough to meet present demands. It will take special diligence on the part of management and workers alike to put the 1942 Scrap Drive over the top. To check the efficiency of your salvage methods, see if you are turning in all three of these classes of scrap:

"BREAD-AND-BUTTER" SCRAP—The kind most plants sell regularly — filings, shavings, stampings, rejects — metal scrap created in the process of manufacture or construction.

DORMANT SCRAP—Unused or abandoned equipment, broken or worn-out machine parts, old boilers, moulds, dies, pipe, valves, electrical equipment, engines, trucks, etc.—the "junk" that accumulates but often misses routine scrap collection.

"RAINY-DAY" SCRAP—The hardest of all to part with. Includes obsolete machinery, unused metal buildings, stacks, outdated tools, fixtures, patterns, stocks, etc.—idle now because they're being saved for possible use in some indefinite future emergency. The emergency is here! This metal should be scrapped, unless it can be reconditioned and put to work now.

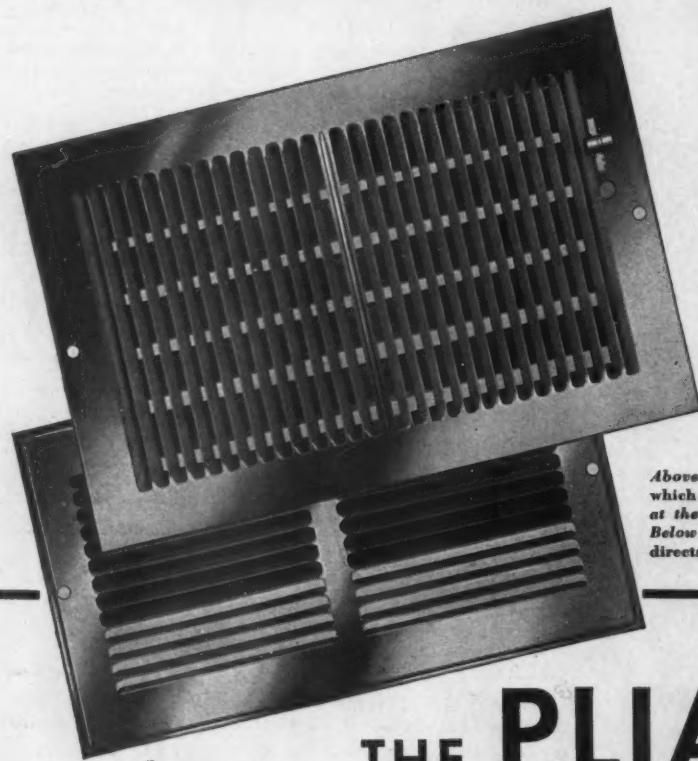
If you haven't already, we suggest you organize your own scrap drive. Your local Industrial Salvage Committee will help you plan a forceful program. Put some one individual in charge of salvage in all departments of your business, and give him authority to act. Promote the drive to your employees with posters and prizes. Emphasize speed and continuous effort. Make them all "scrap conscious." If you need more information, contact the Bureau of Industrial Conservation, War Production Board, Washington, D. C.

YOUR SCRAP IS WORTH ITS WEIGHT IN VICTORY

★ ★ ★
AMERICAN STEEL & WIRE COMPANY, Cleveland, Chicago and New York • CARNEGIE-ILLINOIS STEEL CORPORATION, Pittsburgh and Chicago • COLUMBIA STEEL COMPANY, San Francisco • NATIONAL TUBE COMPANY, Pittsburgh • TENNESSEE COAL, IRON & RAILROAD COMPANY, Birmingham



CALLED TO DUTY IN WAR HOUSING PROJECTS



THE ideal register for low-cost Housing Projects is the scientifically constructed Pliavane. Modern and good looking, easily painted, it is so flexible that it can be used in any location. The air stream is deflected sidewise, easily, quickly by the individually adjustable face vanes and *at the same time* up and down by the back blades which may be "set" from the register face. Does all the "tricks" of the most expensive air conditioning register—but mass production means that it can be priced to make it the first choice for War Housing.

Above: The Ajustiblade Model Pliavane Register which directs the air sidewise and up and down *at the same time*.
Below: The Single-Valve Pliavane Model which directs the air up, down or straight ahead.

THE **PLIAVANE** BY
TUTTLE & BAILEY, Inc.
NEW BRITAIN, CONN.
CHICAGO PHILADELPHIA HOUSTON





Amendment 6 To M-21-b

AMENDMENT 6 to order M-21-b, announced July 23, permitting jobbers to sell sheets (see order below) only on orders carrying a rating A-1-a or higher, except for a small percentage of stock which can be sold on A-10 for repair and maintenance, should be protested by every means the heating industry possesses.

It is our belief that this amendment was prepared to meet certain situations among certain types of jobbers without realizing that the terms of the order drastically curtail repair and maintenance of home heating systems which WPB has continuously advocated we keep in top operating condition.

The order says: "Warehouse stocks have been depleted because warehouses have been required to sell on ratings as low as A-10 and have been unable to replenish supplies only on top ratings. Amendment 6 to M-21-b orders Warehouses, after August 1, shall not sell on ratings lower than A-1-a, except for maintenance and repair which may be delivered below A-1-a ratings, provided that deliveries in any calendar quarter shall not exceed these percentages of the total quota of a warehouse for such products—stainless steel products, 3%; tool steel products, 3%; other alloys, 3%; all other steel or iron products, 5%."

This means that sheets—galvanized, black, hot rolled, cold rolled, or any other iron or steel sheet can be sold by your jobber only up to 5 per cent of his stock for your A-10 and other low rated orders.

The intention of this order may be all right for, say, a jobber of tool steel to machine shops in which field most machine shops are busy with war work and will, therefor, get A-1-a or higher. The jobber, in this case, can serve his proper function by maintaining small order delivery stocks.

But in the heating field, the 5 per cent allotted for maintenance and repair on A-10 ratings or thereabouts definitely works a hardship.

Consider what this means. Publicly financed defense housing projects hereabouts have been getting A-3; now some A-2's. On A-2 or A-3 your jobber cannot sell you sheets. Privately financed housing in the A-3's and lower won't get sheets. On your industrial sheet metal work only the

factories doing direct war work have been getting A-1-a's so sheets will not be available for anything but direct war product manufacturers.

If you are an average warm air furnace-sheet metal contractor planning a busy Fall business, this order permits your jobber to sell you only 5 per cent of his sheet stock for your repair and maintenance contracts.

So far as we can check, 5 per cent of the sheets handled by a jobber or a furnace dealer is not enough to care for our usual smoke pipe replacement business, to say nothing of repairs to casings, leader pipe, fittings, etc. Especially at this time of the year.

We believe that sheets, either galvanized or black, should be available for all repair and maintenance of home heating systems. If that means 10, or 25, or 50 per cent of the jobbers sheet stock, then the jobber should be permitted to sell 10, 25, 50 per cent of his stock on A-10 for repair and maintenance and he should be able to replace these sales on the same ratings.

It would seem that this is not a problem of maintaining jobbers' stocks by preventing sales to low priority ratings, but rather, a problem of getting replacement sheets into the jobbers stocks at the A-10 ratings on which repair stocks have to be sold.

As the order now stands, the manufacturers of prefabricated pipe and fittings are one source of repair material. But this presumes these manufacturers are receiving as much material as they need under Production Requirements Plan. Whether or not this need is currently being filled we cannot check on short notice.

To the extent that substitute material can be incorporated into repair parts, use of such material is another source of supply. This is true, too, of other types of work.

We believe that this industry should protest this order. Whatever voice we have in Washington should protest this order. Jobbers through their associations; manufacturers through their organizations and, lastly, the dealer direct to WPB or to his representatives in Congress should explain we cannot keep home heating plants in operating condition without adequate supplies of low rated sheets.

Price Schedule For Purchase of Inventories of Copper and Copper Alloys

Recently 100,000 questionnaires were sent to firms believed to have in stock copper and copper base alloy sheets and other products. Contractors in our industry received these questionnaires. There seems to be the idea that 19 cents is the top price paid for copper sheets. This is not the case as the price paid depends on size. Here we brief the order and suggest that readers get from WPB a copy of the complete schedule "Government's Price Schedule for Purchases of Inactive Inventories of Copper and Copper Base Alloy Products."

ONE million pounds of copper and copper alloy products in idle, excess and frozen inventories were directed into strategic war production during the first fifteen days of the Government copper recovery program, reports Inventory and Requisitioning Branch of the War Production Board and adds:

"Government and industry must cooperate in this big job of channeling rapidly into war production every pound of the half-billion pounds of copper and brass now in the idle and excess inventories of American industry. The scope and magnitude of the task is obvious when one realizes that these inventories are in the possession of some 100,000 holders, many of whom have thousands of different items in their stock."

As a result of the issuance of Priorities Regulation No. 13, which permits the movement of frozen inventories under certain circumstances and to specified buyers, it is now believed that as much as 150,000,000 pounds of copper will find its way into war production without further Government assistance.

Approximately 100,000 inventory questionnaires sent to all types of firms which would ordinarily use or process copper and copper-base alloys; 30 percent have so far been filled out and returned to the War Production Board.

The copper recovery program divides itself into three phases.

First: The holders of idle or excess inventories of copper and copper-base alloys report these inventories in detail to WPB. At the same time they indicate whether or not they are willing to accept Government prices for their materials.

Second: WPB then makes every effort to arrange a negotiated sale of material usable in its present form by a war contractor. The owner gets a better price if the material can be used in its existing form. In this type of transaction, WPB acts only as a clearing house.

Third: If materials do not lend themselves to direct use in war production in their existing form, they may be purchased by the Government and allocated to scrap users. In such cases the Copper Recovery Corporation acts as fiscal agent, and pays Government schedule prices to the owner.

In the event that a holder refuses to sell his material for war purposes it will probably be necessary

for the Government to requisition and take over his inventory in order to maintain war production schedules.

Any holder of copper or copper-base alloy who is not engaged in war production, and has not received a WPB inventory form should immediately apply to the nearest WPB field office for copies of forms 843 A, B and C, and file them at once with the Copper Recovery Corporation, 200 Madison Avenue, New York, N. Y.

Likewise, war contractors encountering shortages of copper which cannot be filled at the time needed through normal sources of supply also should get in touch with the nearest WPB office, as WPB and the Copper Recovery Corporation maintain a perpetual inventory of all available idle and excess copper and copper-base products. The materials included in WPB's master inventory are available to all war producers with preference ratings of A-1-k or better.

The Government's Price Schedule for Purchases of Inactive Inventories of Copper and Copper Base Alloy Products explains the order:

"Form 843-A is a detailed report of your inventory of primary copper and copper-base alloy products that are still in the form in which you received them (sheets and strip, for instance). Form 843-B is for nonassembled, partly or wholly fabricated copper or copper alloy products. Form 843-C is for all other copper or copper base alloy materials. You must also complete and return with the above reports one copy of the affidavit, Form WPB 843-D.

"Copper products means products made of sheet, rod, tubing, extrusions, castings wire, etc. Copper base alloy means any alloy metal with 40 percent or more of copper in the composition.

Without trying to show all government purchase prices these are typical:

COPPER SHEETS, HOT OR COLD ROLLED, ANY LENGTH

| Weight | Width in Inches | | | | |
|------------------------|-----------------|----------------|----------------|----------------|----------------|
| | 20 to 36, Inc. | 36 to 48, Inc. | 48 to 60, Inc. | 60 to 72, Inc. | 72 to 96, Inc. |
| 24 oz. to 20 oz... 19c | 22c | 22c | 26c | 26c | 26c |
| 20 oz. to 16 oz... 19c | 22c | 26c | 26c | 26c | ... |
| 16 oz. to 14 oz... 22c | 26c | 26c | ... | ... | ... |
| 14 oz. to 12 oz... 26c | 26c | 30c | ... | ... | ... |
| 12 oz. to 10 oz... 26c | 30c | ... | ... | ... | ... |

COPPER STRIP, OR ROLLS

Width in Inches

| Gauge | 1/8 to 3/16 | 3/16 to 1/2 | 1/2 to 2 | 2 to 8 | 8 to 12 | 12 to 16 | 16 to Over |
|----------------------|-------------|-------------|----------|--------|---------|----------|------------|
| 22 ga. and thicker.. | 24c | 20c | 17c | 17c | 17c | 17c | 17c |

Interpretations, Amendments, Easements To Existing Orders

Repair Parts Get Metal

AN interpretation to Order L-22 on furnaces announces that replacement parts may be manufactured over and above quotas established by the order.

L-22 provides that during the calendar year 1942, no manufacturer may incorporate into furnaces iron or steel in excess of certain specified quotas. No restrictions, however, are placed on the manufacture of replacement parts for furnaces. The ruling follows:

Interpretation No. 1 of Limitation Order No. L-22

The following official interpretation is hereby issued with respect to Section 1021.1 (General Limitation Order No. L-22) :

Paragraph (b) of General Limitation Order No. L-22 provides that during the calendar year 1942 no Class A Manufacturer or Class B Manufacturer may incorporate into Furnaces iron and/or steel in excess of certain specified quotas. However, nothing in General Limitation Order No. L-22 restricts the manufacture of replacement parts for Furnaces. Consequently such replacement parts may be manufactured over and above the established quotas.

Issued this 29th day of July, 1942.

Processed Tin and Terne Released

TIN and terne plate which had been put in process on May 16, 1942, and roofings, furnace pipe, and fittings in inventory on May 16, 1942 may be used for repairs, regardless of ratings, and on defense housing under an amended version of Supplementary Order M-21-e, issued July 11. The amended order also adds certain items to the list which may use tin or terne plate, and relieves warehouses of the necessity for reporting to WPB on Army and Navy orders, but does require the warehouse to obtain a certification from its customer on these orders.

The original order M-21-e specifically limited the amount of tin and terne which might be used, and directed the purposes for which it could be used. The net effect of this amended order is to unfreeze certain inventories and to permit additional uses of tin and terne plate, not because the shortage of tin is any less critical, but because the items permitted fill a necessary place in both military and civilian economy.

Salient sections of the amendment follow:

Tin Plate and Terne Plate

Supplementary Order M-21-e (§ 962.6) is amended to read as follows, effective immediately:

§ 962.6 Supplementary Order M-21-e—(a) Definitions. For the purposes of this order:

(1) Tin plate means steel sheets coated with tin (including primes, seconds, and waste-waste) and includes:

(i) Electrolytic tin plate.

(ii) Hot dipped tin plate.

(2) Terne plate means steel sheets coated with terne metal (including primes, seconds, and waste-waste) and includes:

(i) Short ternes.

(ii) Long ternes.

(3) Terne metal means the lead-tin alloy used as the coating for terne plate.

(4) Process means cut, draw, stamp, spin, or otherwise shape.

(5) Put into process means the first change by a manufacturer in the form of material from that form in which the tin plate or terne plate is received by him.

(e) Exceptions as to materials in inventory. (1) Exemptions granted prior to July 11, 1942, permitting use of material in inventory, are hereby confirmed. All other exceptions are revoked as of July 11, 1942.

(2) The provisions of paragraph (b) (Restrictions on use of tin plate and terne plate, original order) shall not apply to roofing materials or to furnace pipe and fitting materials in inventory on May 16, 1942, to be sold or delivered for maintenance and repair purposes regardless of rating or on orders for defense housing, as permitted by the Defense Housing Critical List.

(3) The provisions of paragraph (b) shall not apply to materials in inventory (other than materials referred to in paragraph (e) (2)) which on May 16, 1942 had been put into process, or had been painted, lacquered, lithographed, or enameled.

(f) Exception for Army, Navy, and Maritime Commission Orders. The provisions of paragraphs (b) and (c) shall not apply in the case of articles to be purchased by or for the account of the Army or Navy of the United States, or the United States Maritime Commission, or to be physically incorporated into products to be so purchased.

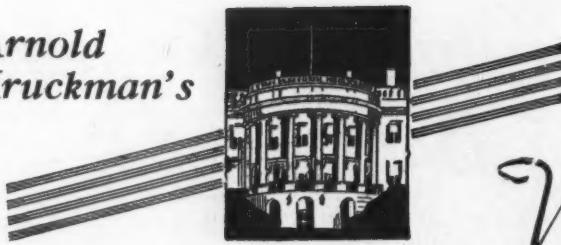
(g) Reports of frozen stocks. Any person who possesses stocks of tin plate or terne plate and who is unable to sell, deliver, or use such material because of the provisions of this Order shall file in duplicate immediately with the War Production Board, Iron and Steel Branch, Washington, D. C., Ref.: M-21-e, an itemized list of such material giving quantity (in net tons) size, gauge, and weight of coating.

Normal Oil Deliveries in Oregon, Washington

FUEL-OIL deliveries to consumers in the States of Oregon and Washington will be returned to normal under the terms of an amendment to Limitation Order L-56, issued July 11 by the WPB on the recommendation of the Office of Petroleum Coordinator.

A 50-percent cut in deliveries of fuel oil for use in heating and cooling equipment has been in effect in Washington and Oregon since May 15. The July 11 amendment removes this limitation by shifting the States of Washington and Oregon from Area One, which now consists only of Eastern States where the 50-percent limitation remains in effect, to Area Three, where deliveries to consumers who now use fuel oil for heating and cooling are unrestricted.

*Arnold
Kruckman's*



Washington Letter

The Critical Metals Situation

STRIPPED of all legal terminology and reduced to fundamentals, the latest rationing orders actually are not much of a mystery. In its simplest terms it means you and every other living soul in this country, now exist under a completely controlled economy. The reason Washington seems so wary about discussing it freely is because officials are uneasy. You see, the right of private property and the sanctity of contracts have been invaded. No one seems quite to know whether or not the War power of requisitioning is Constitutional. What they do not seem to grasp is the patent fact that people are reasonably willing to forego their usual rights and privileges if they can be convinced that someone knows what to do with the rights and privileges they temporarily surrender. And this gets back to the coming elections. These people in Washington do not quite sense or trust the temper of the people until they register this temper in the elections.

It is essential you understand this background if you would really grasp the control machinery now being set up over your business and your life. If it seems what you are told today is different, in detail, tomorrow, bear in mind that no clarification is apt to come along until after the election. What you and others say at the Fall polls is the catalyst that will shake things into perspective for Washington.

Military Needs Are Swallowing Civilian Needs

Meanwhile WPB cautiously is getting set. The philosophy behind the WPB motions essentially is that civilians must control the civilian economy and that military men must control the military economy. The trouble is that the military economy, naturally, is gradually engulfing the civilian economy because we are in Total War; and apparently in Total War you can not successfully conduct two kinds of economies side by side. And you can scarcely blame most of the people for a reluctance to accept total war. This is the first time in the history of civilization that nations have engaged in Total War. It has not happened since men shed clubs and bear skins. Total War means that every mother's son and daughter, from the tiniest mite to the most imposing individual, fighter or non-fighter, is in it. That is the pace set by the Germans, the Japanese, and the Italians.

Apparently this is the thought Gen. Marshall, the Chief of Staff, has in mind when he insists we need unity of command. In a Total War, Gen. Marshall apparently is convinced we must temporarily surren-

der our individual democratic privileges to secure unity of command, and for this reason the Army feels the system of parallel controls of the national economy under a civil head and a military head is not workable to win the War. Army and Navy apparently feel the ultimate unity should focus in some military source. That has been the bone of contention between Mr. Nelson and the Army-Navy Munitions Board. Pending elections, the Nelsonian philosophy has prevailed. But Washington generally feels the logic of the military minds will permanently prevail.

Control Setup As It Is Today

At this writing Nelson is the grand over-all head of the machinery that controls the civilian economy of the nation. William L. Batt is the senior Vice Chairman taking over the more detailed general work abandoned by Nelson. James S. Knowlton is the junior Vice Chairman with responsibility for program determination, whatever that may mean. Amory Houghton now is Director General of Operations, which obviously means he pitches the balls made by the other three. Under him he has a Conservation Division headed by Lessing Rosenwald and Paul Cabot; a new set-up called the Production Engineering Division which will work out methods of making your production and technique more effective; a new Facilities Utilization Division which apparently will come into your plant and apply the methods devised by the Production Engineering people; a Division of Industry Advisory Committees; Priorities Administration Division; and the Inventory Control Division.

Inventory Control is Now Here

The last section is the most significant. Obviously there would not be an Inventory Control Division if it were not the plan to take over control of your inventories. Some time in August the Committee and the experts who have been working on the problem of inventory control will make a report with recommendations. It is generally assumed they may suggest that stocks or inventories piled up by those who grabbed while the grabbing was good, should be taken over by Government, in theory, and distributed among those who are short of inventories. The idea is to level, to give every merchandiser an even break in relation to his facility and field.

Obviously, if the plan is adopted, Government will impose the price to be paid to those from whom the

stock is taken, just as Government will tell the merchandiser what he may charge, how much he may sell, and, possibly, may tell him whether or not he may sell.

"Concentration" of Production Coming

You may have noticed in your newspapers that Nelson has promulgated the British plan of "concentration," and "nucleus" plants. That means in simple language some plants are concentrated out of business, others form the "nucleus" around which is concentrated what is left of the business of those firms which are squeezed out of existence. Just how the abolished firms will be compensated has not been told. In Britain they are given either a flat sum, or a share of the profits, and the promise that they will be revived when the War is over.

Of course, no one has mentioned it yet, pending the elections, but it is apparent this is a direct method of rubbing out competition where competition seems superfluous. Inventory control may do the same thing to smaller businesses, and to retailers. If there are too many shops selling hardware and stoves and related products in an area, it is natural the competition might be eliminated by concentrating the stocks and the services in the most central and most usefully conducted store. That would cut down useless business, release men for War work, and provide more room for other activities in the stores and warehouses that are abandoned. All this, obviously, has a bearing on Allocations and Priorities.

Allocation Means Rationing

They use the term Allocation, Priorities, Quotas, and Rationing interchangeably here. As they use it here, now, Allocation, the latest phrase, means distribution of the materials of which there are not enough to go around among those who need them.

These materials are obtained from stockpiles, pools, reserves, inventories, some of which have actually been accumulated by the Government and are held at specific places, while others are purely theoretical, based upon surveys which presumably have located the materials, and which, in theory, may be drawn upon wherever they may be located, when the need occurs.

Theoretical stockpiles largely consist of "frozen" stocks, in warehouses, in factories, in shops and retail stores, anywhere, where they have been immobilized by the innumerable Orders that have flooded the economy during the past 18 months.

Regulation 13, recently promulgated, is designed to make these "frozen" stockpiles available. It works this way: numerous industrial units scattered around the country now have in their possession raw materials, fabricated materials, partially manufactured materials which the Government, at various times, has told them to hold. These materials, in whatever form, are not the finished products the companies usually sell. Under Regulation 13 they are not permitted to sell the finished furnace, or stove, or stovepipe, or what have you, that is their normal product, but they are permitted to sell the basic metal and the partly manufactured materials they use to make these products.

The metals, whatever they are, already have been frozen or immobilized in the manufacturer's possession, and thus form a part of the national stockpile.

Now, the time has come to push this material into production of much needed war stuff. Therefore, the material which is not in the form by which it has gained value through processing and complete assembly, may be sold to those who need the material or the thing for War production. If you can find a purchaser, who is authorized to buy your material, and has an appropriate Priority rating, you now may sell your "frozen" material, at the price fixed by OPA, and under the credit regulations imposed by Regulation 13, and subject to such records and reports as may be required by existing regulations, without securing further permission from WPB. Bear in mind, however, you may NOT do so if you are solely a dealer, a retailer, or if you deal in food or drugs.

Retailer Inventory Control Being Prepared

It is anticipated another version of the same Regulation, possibly numbered 14, will be issued to cover the transactions of the dealer, the contractor, and the retailer. Always remember, the Government *does not regard the contractor*, as you define the contractor, *as a wholesaler or a dealer*. He is a retailer, legally, for War regulation purposes, and is restricted from doing the things which may not be done by the retailer, and has the freedom which may or may not be inherent in the present status of the retailer. If you reflect upon that statement and all its implications it will answer many questions about interpretations of some of the Orders.

The latest thinking on war worker housing seems to be that large numbers of additional shelters for War workers are needed and that most of them probably will be built in the Northeast, in the Southeast, and particularly on the west side of the Mississippi River. It also seems probable that there will be some relaxation of the tight restrictions against urgently necessary housing repairs in non-War areas. Off the record, the idea here is that some of the present regulations may be too tight and that civilians need more leeway to make repairs and to maintain their housing equipment, such as, for instance, furnaces.

The "Victory" Furnace

It is possible the furnace industry may be permitted to produce and install some simpler types of furnaces, economizing on metal, to be known as Victory furnaces, and to be ready next year. All this, however, is wishful planning rather than factual programming. The paramount thought in Washington is that all building ahead must be temporary since we cannot build good structures because we lack the materials. They offer the consolation that this condition means the business will have a tremendous impetus after the War is over.

Metal Situation Still Confused

The whole critical metal situation is confused and bewildering. Congress insists there is enough metal, especially iron and steel, to supply a moderate quantity to all essential industries, while WPB and the armed services vigorously assert there is not even enough to take care of military and lend-lease needs. The quota system announced by WPB Iron and Steel Branch "to balance steel production among the various

(Continued on page 76)

On Our Industry's Front

To "Concentrate" Civilian Industries

CHAIRMAN Donald M. Nelson announced July 23 that the War Production Board has approved the principle of concentration of industry as a means of alleviating the strain placed on the civilian economy by the war effort.

Heretofore, Mr. Nelson pointed out, the necessary limitation of output of civilian industries has been attained for the most part through orders which impose uniform percentage reductions on all firms.

The war program has now reached a stage, however, in which the imposition of straight percentage cuts on all firms does not provide for the most effective use of the Nation's resources. Consequently, Mr. Nelson said, the board has decided that wherever possible a policy of selective limitation be applied, with essential civilian production concentrated in certain plants and regions.

Conditions for Concentration

In adopting this policy, the board held that there is a strong *prima facie* case for concentrating the production of civilian goods wherever one or more of the following conditions are found in a civilian industry:

1. Some or all firms in the industry are needed for war production and can be converted to such production.
2. Permitted civilian production is so restricted that economic operation of all firms in the industry is not possible.
3. A significant part of the production is continuing in areas where there are bottlenecks in labor, transport, power or warehouse facilities.

Small Plants Most Likely to Continue

No hard-and-fast rules can be laid down, Mr. Nelson said, to govern the selection of "nucleus plants"—i.e., plans which will be allowed to continue operation at or near capacity. In general, he said, the following criteria will guide WPB officials in such selections:

1. As a rule, though not invariably, small plants will be kept in civilian production, and large plants, which are usually better equipped to handle war contracts, will be required to suspend civilian production.
2. Civilian production should be suspended in areas where labor is urgently needed in war plants, and nucleus status should be given wherever possible to plants in areas where there is still a surplus of labor.
3. Nucleus firms should be selected so that cross-hauling is eliminated wherever possible and the drain on transportation facilities is reduced.
4. Production should be suspended or restricted in regions where the power supply is, or is likely to become, inadequate.
5. As a general rule, nucleus plants should not be located in areas where warehouse accommodations are short.

In working out concentration plans the board feels that these principles should be applied:

1. Concentration plans should not foster post-war

domination of an industry by one or a few companies.

2. Wherever possible, concentration plans should be accompanied by standardization and simplification of the product.

3. Concentration programs should be drafted for limited periods—with one year, probably, as a maximum.

5. Where compensation is provided for firms closed down, it should be paid by the firms which continue operations and should be limited to the duration of the concentration program. This would presumably include either an agency scheme, under which nucleus firms produce at cost for closed-down firms which retain their sales organization, or a pooling scheme which concentrates both production and distribution in the nucleus firms.

Forced Warm Air Defense Units

NATIONAL Warm Air Heating & Air Conditioning Assn. reports that Procurement Division of the Treasury states that the following number of coal-fired defense housing units have been purchased:

| | |
|------------------------------------------|--------|
| Low Boy | 10,330 |
| High Boy | 2,860 |
| High Boy with Built-In H. W. Generator.. | 1,268 |

TOTAL UNITS 14,458

Earlier in the year it was planned to purchase approximately 100,000 forced warm air units, coal, gas and oil-fired. Because of gas and oil limitation orders probably few such units have been purchased. However, exact information on oil and gas are not now available.

Copper In Repairs

USE of copper and copper-base alloy was forbidden in building construction by Conservation Order M-9-c-4, issued July 22.

To conserve copper urgently needed in war production, the July 22 order forbids delivery, acceptance of delivery, or use, installation or connection, of any copper or copper-base alloy pipe, tubing or building material containing 5 percent or more copper except by specific authorization by the Director General.

Exceptions are uses of 25 pounds or less to repair a building where the metal so used is to replace copper building material previously installed.

To release such forbidden products for use in essential war production, the order provides that sale and delivery of forbidden building materials may be made to scrap dealers, brass mills, Defence Supplies Corporation, or Copper Recovery Corporation.

New Motors for War Only

THE electric motor and control section of the general industrial equipment branch announced July

24 that henceforth new motors will be released only for the most important war and civilian requirements. Other applicants for new motors will have to adapt used equipment to their needs. In general, large motors of any kind—used or new—are not available for other than war or essential civilian purposes.

At the same time, in a broad move to conserve materials, production capacity, and manpower in the electrical goods manufacturing industry, the electric motor and control section announced that it is requesting

producers to undertake a voluntary simplification program covering types and designs of motors. "Overloading" of present equipment beyond its rated capacity will be an integral part of this program.

In order to have a complete file showing all available used motors in the country, the WPB has asked that owners of motors adapted for commercial purposes communicate with the conservation division, used-equipment section, giving all relevant information.

Simplified Practice For Stove Pipe

IN compliance with the request of the Plumbing and Heating Branch of the War Production Board, a proposed simplified practice recommendation for stove pipe and accessories was developed, and in March 1942 it was submitted to the industry for acceptance. This proposal, covering sizes, gages of metal, and finish of the kinds of stove pipe recommended for adoption, was approved by a large percentage of the manufacturers. These items are shown in Table 1.

After reviewing the results of the circularization for acceptance of the proposed recommendation, the War Production Board informed the National Bureau of Standards that the simplified program would be considered as the basis for a schedule in Limitation Order No. L-42. The War Production Board has accepted this recommendation as the basis for inclusion as a schedule in Limitation Order No. L-42, which covers plumbing and heating materials. In the event that the schedule is issued, adherence to this recommendation will be mandatory in accordance with the terms of the order, rather than voluntary, as would be the case under normal conditions.

The line of stove pipe and accessories has been simplified primarily by the elimination of certain gages of metal in which many of the items had been made; few sizes heretofore manufactured have been discontinued. For many years it has been the practice of the industry to make ordinary stove pipe in

five or six gages, a practice which has necessitated the carrying of large inventories by jobbers and dealers. According to available data, the recommendation eliminates 142 items, or approximately two-thirds of the 209 items which the industry has been producing for general use. It is believed that the 67 items retained will adequately serve the majority of consumer needs for replacements and new installations.

The recommendation herein is being promulgated to assist the industry in making the schedule effective, and to acquaint the public with the sizes and types of stove pipe and accessories which will be available during the emergency. This program will serve as the basis for a voluntary simplified practice recommendation after the emergency, when any necessary revisions can be made by a representative standing committee of the industry.

Acceptors of the Standards

Acme Tin Plate & Roofing Supply Co., Philadelphia, Pa.
Burkhead Manufacturing Co., Houston, Tex.
Char-Gale Manufacturing Co., Minneapolis, Minn.
Excelsior Steel Furnace Co., The, Chicago, Ill.
General Metalware Co., Minneapolis, Minn.
Huenefeld Co., The, Cincinnati, Ohio.
Jacques-Evans Manufacturing Co., St. Louis, Mo.
Louisville Tin & Stove Co., Louisville, Ky.
Milcor Steel Co., Milwaukee, Wis.
Northwest Metal Products, Inc., Seattle, Wash.
Parkersburg Iron & Steel Co., The, Parkersburg, W. Va.
Phillips & Buttorff Manufacturing Co., Nashville, Tenn.
Reeves Steel & Manufacturing Co., Dover, Ohio.
Sheet Metal Specialty Co., Pittsburgh, Pa.
Waverly Heating Supply Co., Boston, Mass.
Wheeling Corrugating Co., Wheeling, W. Va.

TABLE 1.—SIZES

| Item | Sizes (Diameters) | Length of Joints | Gages ¹ | Finish |
|-----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|---------------------|--------------|
| Joints, straight | Inches 3, 4, 5, 6, 7 7 to 6 6 to 5 5 to 4 | Inches 12, 24 24 | 28 and 30 | Uniform blue |
| Joints, taper | 3, 4, 5, 6, 7 | 24 | 28 and 30 | Do. |
| Elbows, corrugated, 1 piece, 90° | 3, 4, 5, 6, 7 | | 28 and 30 | Do. |
| Elbows, adjustable, 4 pieces, 90°-2-inch regular ends | 3, 4, 5, 6, 7 | | 28 | Do. |
| Reducers, oval | 7 to 6 6 to 5 6 to 3 6 to 4 6 to 5 7 to 6 7 to 6 | | 28 | Do. |
| Reducers, round | 6 to 4 6 to 5 7 to 6 7 to 6 6 to 5 6 to 4 6 to 3 3x3x3 4x4x4 5x5x5 6x6x3 6x6x4 6x6x5 6x6x3 7x7x7 | | 28 | Do. |
| Reducers, round flue | 6 to 5 6 to 4 6 to 3 3x3x3 4x4x4 5x5x5 6x6x3 6x6x4 6x6x5 6x6x3 7x7x7 | 12 | 28 | Do. |
| Joints, tee | 6x6x3 6x6x4 6x6x5 6x6x3 7x7x7 | 12 | 28 and 30 | Do. |

¹ U. S. Standard Gage for sheet steel.

Lead Returned to Unrestricted Group

THE fourth provisional report on relative scarcity of certain materials issued July 2, 1942, by the Conservation and Substitution Branch, Bureau of Industrial Conservation, War Production Board, has dropped lead into Group III: "Materials that are available in significant quantities as substitutes for less available materials, and materials that are available in large amount unless restrictions are imposed by labor, manufacturing, or transportation difficulties."

Lead, therefore, is at the disposal of those engaged in building construction and can be used for its regular applications as well as to conserve other more critical metals. Lead can be used as flashing and roofing material.

Such products as Revere's "Roofloy" and lead sheets should now be readily available.

7-Year, \$5,000 Loans for Conversion

FHA insured remodeling loans up to a total cost of \$5,000, with repayment up to 7 years are now available for house remodeling where the owner signifies an intention of adding additional rooms or apartments for war industry workers. These loans are restricted to designated Defense Areas.

Loans for maintenance and repair work are also available up to a total cost of \$2,500 in non defense areas.

In the \$5,000 loan group structural changes must be made—a new room, a new wing, making living space of attics and so forth but as a part of the remodeling revisions of, additions to and even completely new heating systems can be included in the \$5,000 total cost.

Critical Metals Situation

FOLLOWING is the situation and prospects for certain critical metals as expressed by "Metals and Alloys."

"Aluminum. U. S. production in 1943 should reach 1,250,000 tons yearly, against 541,500 tons for 1942, and only 166,500 tons in 1939. Added to the 1943 home primary output should be considerable imports, including 225,000 tons from Canada; also much scrap from the home front. About 425,000 tons of additional capacity, authorized 20 months ago, is now in production while another 300,000 tons will be pouring ingots Aug. 1.

"Chromium. U. S. chrome ore supply for 1942 is expected to reach 1,000,000 tons, over three times the use in 1939, and nearly equal to world production of 1939, in which year a little over 2000 tons was produced in the United States. The Government has spent \$10,000,000 and private industry \$1,500,000 to build up our supply, a stockpile having been started 18 months ago. Low grade ores in Montana are expected to produce 500,000 tons of 40 per cent chromium concentrate a year, with some from California and Oregon.

"Copper. Domestic production and imports should reach 1,800,000 tons this year. Adding scrap, we should have available 2,100,000 tons, comparing with 800,000 tons used in 1939. About 98½ per cent of total U. S. production is from 15 mines, the rest from 270-odd mines. The Government is spending over \$180,000,000—and industry \$40,000,000 more—in 1942 and 1943 for more

capacity. To stimulate production, bonuses have been paid to low grade ore producers and for over-quota production in high grade. Rigid substitutions of other materials are in motion.

"Tin. We are depending more on conserving our supply, estimated at 14 months' on Dec. 7th, than with increasing production of this important imported metal. However, Bolivia is our trump card, and big-figure contracts have been signed. Moreover, Bolivia will furnish our sole tin smelter in Texas, Government-built, with ore to produce 18,000 tons of pig tin a year. Detinning household cans gives a very minor supply, though it could be stepped up on more urgent needs."

War Worker Housing

NATIONAL Housing Agency Director Blandford in his recent report to Congress asked for 600 million dollars for war worker housing. He said 1,330,000 housing units are required including dormitories, trailers, single and multi-family units. 200,000 units will be new construction built by private enterprise. 260,000 units are hoped for through conversion of old houses into apartments, rentable rooms, etc.

How to Store Your Truck

TRUCKS taken out of service because of the war conservation program should be stored with the utmost care; certain specific procedures should be carried out to prevent deterioration.

The first rule calls for storage places which give the trucks complete protection from the weather. As an added precaution, they should be covered by paper or cloth to keep dust and dirt from getting into the moving parts.

Cooling systems should be drained and flushed, and the fuel tanks and lines also should be emptied to prevent sediment formations.

An ounce of lubricating oil should be poured into each cylinder and the engine slowly turned over to give the cylinder and piston walls a protective coating.

Oil also should be applied to all other moving parts which are accessible, while grease should be left in transmissions and differentials. Unpainted parts of the chassis should be coated with grease.

The clutch should be disengaged and the emergency brake released. Batteries should be removed for periodic servicing.

Tires should be removed without deflating and stored in a horizontal position in a cool, dark place.

Insulation Is Urged

OWNERS of homes which "leak heat" can contribute to the war effort if they insulate these buildings and thus save fuel, says Federal Housing Administration.

Today the home owner can get the material, as insulation material is generally available and is not on the list of critical materials. In most sections of the country he can get the workmen, although skilled labor is getting increasingly scarce. And in all sections of the country he should be able to get the money under Title I of the National Housing Act.

Priority Questions and Answers

Maximum Price Regulation No. 188

COINCIDENT with announcement of Maximum Price Regulation No. 188—Manufacturers' Maximum Prices for Specified Building Materials and Consumers' Goods, Other Than Apparel—the Office of Price Administration released the following question-and-answer series designed to explain certain features of the order:

Q. What products are covered by the new Regulation?

A. Only certain specified building materials and consumers' goods, a complete list of which can be found in Appendix A of the Regulation. This list includes such building materials as furnaces, plumbing fixtures, asbestos shingles, insulation board, etc.

Q. Who is covered by this new Regulation?

A. Any manufacturer of the listed products. Furthermore, those who purchase from a manufacturer are prohibited from paying more than the maximum price permitted by the Regulation.

Q. Are these products removed entirely from the provisions of the General Maximum Price Regulation?

A. No. Only those sections of the General Maximum Price Regulation which have to do with the pricing of products are made inapplicable, viz., Sections 1499.2 and 1499.3.

Q. What is the effective date of the present Regulation?

A. August 1, 1942, except for sales and deliveries to any agency of the United States, for which the effective date is September 1, 1942. All commodities introduced subsequent to August 1, 1942 must be priced according to the new procedures. All articles finally priced and offered for sale prior to August 1, 1942, whether priced under the General Maximum Price Regulation or otherwise, shall retain those maximum prices so established. Accordingly, articles which are the same as those dealt in by the manufacturer during March shall retain as their maximum prices the highest prices which he charged for the same articles during that month. All articles which are not the same as those dealt in during March but which were finally priced according to any of the other formulae provided in the General Maximum Price Regulation shall retain those maximum prices.

Q. What are the new pricing procedures which have been established by this Regulation?

A. Four methods of pricing new articles are provided in the Regulation, which must be applied in the order given. The first method must be used unless it cannot possibly be applied. Then, the second method may be used. If it, too, cannot be applied, the third method is permissible, and so on. In other words, a manufacturer is not permitted to use any particular one of these four methods unless he is clearly unable to use any of the methods preceding that one in the list.

(1) The maximum price of a new article, which exhibits only minor changes from an article already priced under any maximum price regulation, and which changes do not reduce cost of materials or prevent its rendering fairly equivalent serviceability, shall be the same as that of the article so priced.

(2) The maximum price for an article which has

been substantially changed from an article already priced under any maximum price regulation solely because of shortages of materials or parts used in the original article, shall be the price of the original article adjusted for the increase or decrease in unit direct cost resulting from the change. Unit direct cost shall be computed according to the procedures outlined under test (3).

(3) The maximum price of a new article shall be that determined by the "comparable-article" formula provided in the Regulation.

(4) The maximum price of a new article shall be that specifically authorized by OPM after proper application has been made by the manufacturer.

Minor Changes

Q. Would a change in the finish of an item at no increase in cost, when in March the item was sold only in one finish, be considered a minor change?

A. Yes, the Regulation defines a "minor change" in an article as one involving "minor changes in material, design, or construction, which do not reduce cost of materials or prevent its offering fairly equivalent serviceability."

Q. A manufacturer of steel item costing \$5.00 and selling at \$8.00 was forced to substitute some plastic because of steel curtailment. The substitute involved a net increase in direct cost of \$1.00 per item. How should he price the new item?

A. The new item should be priced according to the adjustment prescribed for changes in articles due to the use of substitute materials and parts. The new price, accordingly, is \$9.00, which is equal to the old price plus the increased direct cost due to the substitution of plastics for steel.

Q. What is a "comparable commodity"?

A. A comparable commodity is one which is recognized by the industry as being the same general type of product and which has the same general use, even though involving substantial changes in materials or construction. Limiting the choice of a comparable commodity to one having the "same general use" is intended to prevent an electric toaster being priced by reference to an electric fan, etc.

Q. How is the formula mentioned in the third test applied and what are the exact steps to be followed in determining a price where the formula is used?

A. The steps to be followed in applying the formula are as follows:

Step one: Determine the total direct per unit cost of the article to be priced. (Be sure to exclude all items of indirect cost such as maintenance expense, watchman's salary, etc.)

Step two: Select from the manufacturer's line comparable items whose total unit direct costs are arithmetically immediately above, directly below, and exactly equal to the unit direct costs of the article being priced. Lacking any one or two of these, the remaining one or two may be used.

Step three: Compute the average markups of the comparable commodities selected both on a percentage

and a dollar basis as follows. The direct unit costs and the maximum prices of the comparable items should be summed separately and the difference between these sums divided by the sum of the costs to give the percent markup. The dollar difference between the direct per unit costs and the maximum prices of each comparable item should be summed and divided by the number of comparable items to give the average dollar markup.

Step four: Apply both of these markups to the direct unit cost of the article being priced and select as the maximum price for the new commodity the lower of the two prices obtained.

Q. What wage rates should a firm use in determining the direct labor costs of a commodity being priced under the formula in an instance where a 10 percent wage increase for the unskilled employees became effective on March 27 and a wage increase of 7 percent for skilled labor took effect on April 1, 1942.

A. Since the wage increase for unskilled workers took effect during March, it may be used in computing the direct labor cost. For skilled labor, the former wage rate must be used since the increase did not take effect until after March and hence cannot qualify under the clause in the Regulation which says that the highest wage rates in effect during March shall be the basis for determining the direct labor portion of prime costs.

Q. If the new commodity requires a class of labor which the manufacturer did not employ during the month of March, what wage rate shall be adopted for that class of labor for the purpose of computing the direct labor cost per unit of the new item being priced under the formula?

A. The manufacturer shall adopt the highest wage rate paid the same class of labor by the nearest employer, operating under comparable conditions, who employed that class of labor during March.

Q. If the March price of an article used in the formula as a comparable article is based upon materials bought in October at a considerably lower price than the March price for these materials, may the manufacturer employ the October materials cost in computing the direct cost of that comparable commodity?

A. No. The March materials cost must be used.

Q. Should March materials prices always be used in computing the materials cost for the new article being priced under the formula? A *comparable* article?

A. Yes, except where the price of any one of the materials has been rolled back by a special price regulation. In those cases, the new or rolled back price shall be employed.

Q. How does the manufacturer determine the "highest price charged during March" for any particular material?

A. He shall adopt the highest price charged by his customary supplier for deliveries of this material actually made to a purchaser of the same class during the month of March.

Q. What volume of production should a manufacturer use for computing direct per unit costs when he is calculating his direct cost on a *new* article to be priced under the formula?

A. The manufacturer should use that volume which his experience and best judgment leads him to anticipate for the new commodity. Cost figures obtained by reference to experimental runs or sample models shall not be considered a valid basis for computing direct unit costs.

Q. May a firm's normal markup be automatically applied to the direct cost of the new commodity?

A. No. The Regulation established a procedure for computing the markup. The markup obtained by this procedure must be applied regardless of the customary pricing practices of that firm.

Q. If maximum prices exist on the comparable articles for several different classes of purchasers, which maximum price shall be selected in applying the formula?

A. The maximum price chosen for each comparable article shall be that for the class of purchaser to which the manufacturer expects to sell the largest volume of the new commodity. If there exists no maximum price on a comparable article for that particular class of purchaser, the manufacturer shall make an appropriate adjustment according to his customary differentials to secure a maximum price for that particular class.

PD-1A and PD-1X

CLARIFICATION in the differences in usage between the PD-1A form and the PD-1X form has been made by the Distributors Branch, WPB.

"All new equipment is restricted by Limitation Order L-38 even though such equipment is essential to installation. In order to secure a rating to release the equipment from either a jobber or the manufacturer it is necessary for the ultimate consumer (store owner, factory owner, householder) to fill out a PD-1A form stating definitely the reason for the need for the equipment. These PD-1A forms are not to be used by the contractor, or jobber to increase his inventory.

"The other form, PD-1X, is to be used by the contractor, or jobber when he wishes to increase his stock, but only when he purchases the material directly from a manufacturer. PD-1X is not to be used by the contractor or jobber to secure a rating to purchase individual items through a jobber. Ratings granted on PD-1X forms by Distributors Branch, Division of Industry Operations are to be extended

to manufacturers only.

"Within the limitations of the order authorizing the use of PD-1X there is nothing to prevent the jobber from using this form to obtain a normal inventory of equipment such as tools, etc.

"It is suggested that in filing application on PD-1X the exact item wanted be described—do not just specify 'tools.'

"If the manufacturer will not or cannot fill your order on the priority granted on the PD-1X application processed back to you, try another manufacturer. Try as many manufacturers as you can.

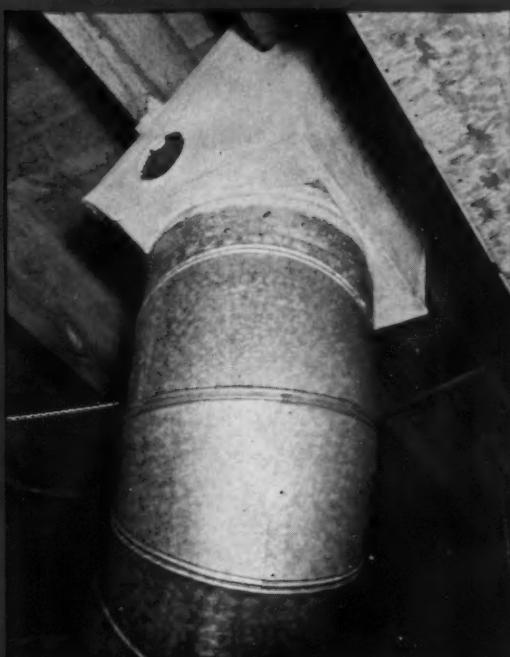
"Then if you cannot find a manufacturer to fill your order get and fill out an appeal form on which you state the facts and what your manufacturer requires in the way of a rating to fill your order.

"It is intended when the Production Requirements Plan becomes fully operative that manufacturers will be given enough material to manufacture equipment in sufficient quantities to satisfy the requirements of repair, maintenance and low rated applications."

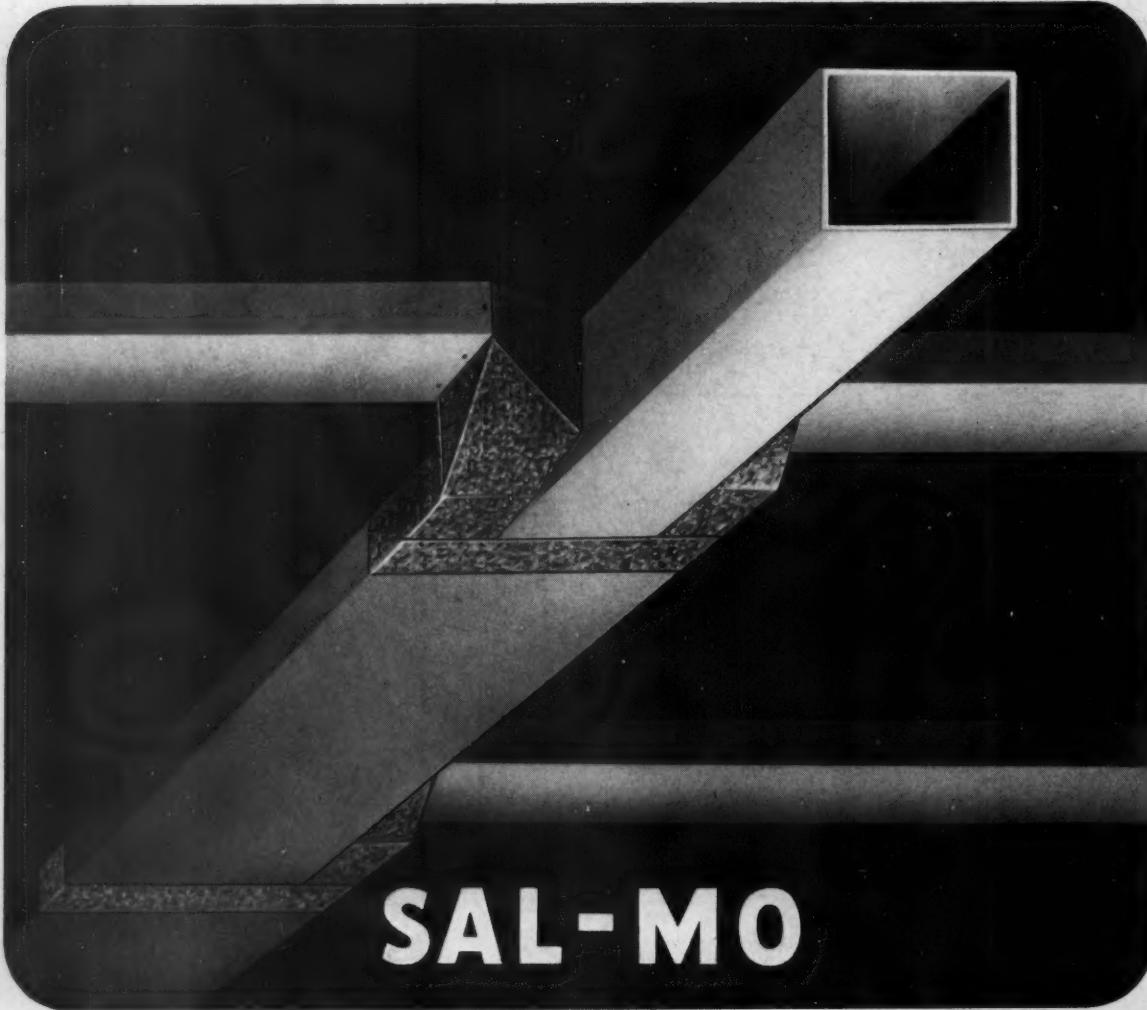
AMERICAN ARTISAN

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S E C T I O N



DEVOTED TO HOME AND SMALL COMMERCIAL AIR CONDITIONING



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NEW Prefabricated and Packaged **SUPPLY DUCT**

Sal-Mo Supply Duct is a new, non-metallic, strong, durable material for constructing supply and return lines in warm air heating and air conditioning systems.

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laboratories and authorities, and is known to possess a large margin of safety. Duct systems of this new material are tight, quiet, insulated, and they save fuel.

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*If we can prove
that old furnaces weigh more
than new furnaces this will be*

One Way to Get More New Furnace Sales

THE National Warm Air Heating and Air Conditioning Association is endeavoring to prove to Plumbing and Heating Branch and Iron and Steel Section of War Production Board that the furnace industry, if permitted to replace old furnaces which are in doubtful condition with new furnaces, can return more metal as scrap than is used in the new furnace.

This is a contribution to the nation's scrap pile which this industry can make.

The association has asked manufacturers to obtain from their dealers a record of old furnaces

replaced, believing that these records will prove that old furnaces weigh more than new furnaces. Dealers can assist in building up this record if they will make copies of the form below and compile a record of the replacement jobs they have recently finished or will do in the next few weeks.

It is suggested that dealers make out these reports in duplicate—keeping one copy in their file and sending the other copy to George Boedener, Managing Director, National Warm Air Heating and Air Conditioning Association, 145 Public Square, Cleveland, Ohio.

NAME AND ADDRESS OF OWNER

Net Weight New Replacing Furnace

Furnace Number

Net Weight of Furnace Replaced

Furnace Name and Number

Approximate Date Old Furnace Installed (If this Information is Obtainable)

Weight of New Furnace

Weight of Old Furnace

Net Gain or Loss

Weight of New Repairs

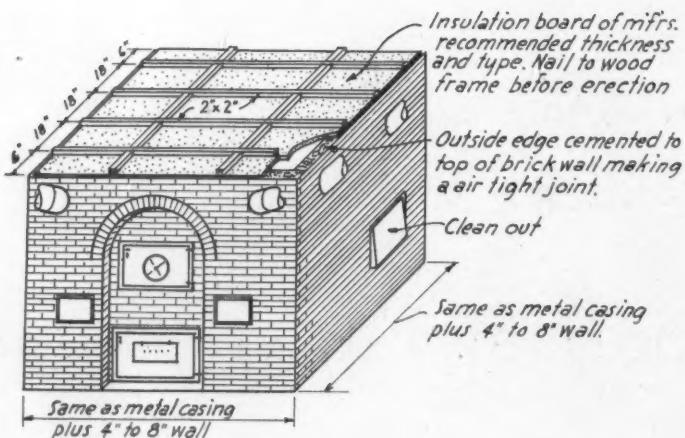
Weight of Old Repairs

Net Gain or Loss

DATE INSTALLED

DEALERS NAME AND ADDRESS

DEALERS SIGNATURE



On the facing page are suggestions from readers on brick casing design and baffling practices. The tabulation on the two pages following explain the sketches. At the left is our suggestion for a "continuous casing" plenum using one of the temperature resistant, non critical, board materials supported by a wood frame. This type of top eliminates most of the "tricky" masonry of sketches A, F, K and the T-bars of E, I, J.

How To Build a Brick Casing

THE latest development in war worker housing is the recently announced "dormitories" which, so we understand, will be built close to the war plant, and will house from 30 to 1,000 persons in each building. The specifications we have heard about are for buildings of a size to house 300 to 1,000 persons, will be frame construction with communal sanitary facilities. Two single men or women will occupy one room, or a man and wife in a room.

Of most interest to us, however, is that forced warm air will be the heating medium with one central furnace in a compact furnace room under each building. These furnaces will range from 300,000 to 900,000 Btu in the plans we have heard about. If buildings are to be as small as a 30-person unit, then many of our usual residential furnaces can be used.

In the big furnaces, several specifications we have heard about call for brick cased furnaces and substitute material ducts.

It's been quite a while since brick casing of furnaces was a common procedure. Of course some school and public building furnaces are still brick set, but this is the exception rather than the rule.

If there is to be the volume of this publicly financed dormitory housing Washington reports indicate there must be, then many contractors will get an opportunity to bid on brick set furnaces. And because only a few know how a brick casing is built, AMERICAN ARTISAN several months ago sent a questionnaire to a list of contractors chosen either because they are old timers and once built brick casings or because the contractor is located in an area where there still are many brick set furnaces.

From these replies the diagrams and tabulation presented were secured and arranged. In addition to the individuals shown in the table we

wish to express our thanks to several dozen other readers who also answered our questionnaire, but we are not tabulating their suggestions because they duplicate the information in the table, so the suggestions would only make the table unwieldy and a reiteration.

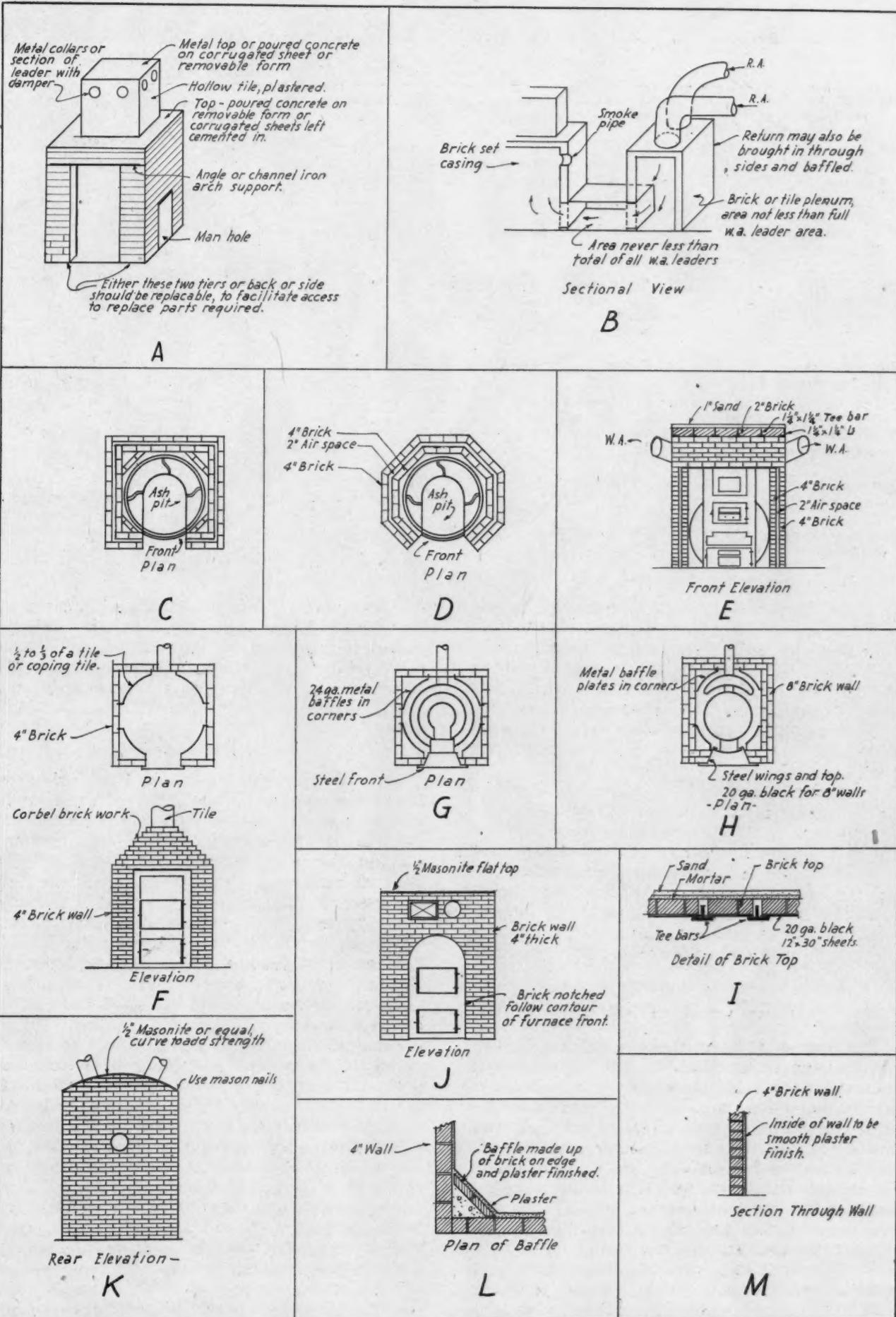
Summary

The drawings and the table show the ideas our industry favored and used when brick casings finally gave way to metal casings. As to wall thickness, either a single brick wall 4 inches thick or a double wall 8 inches thick seemed most popular and we judge from comments that the single wall was used where cost was a factor and the double wall where the best possible casing was demanded.

With modern forced air—and because both the furnaces and the dormitories are temporary expedients—it seems that a well laid up single brick thick wall ought to answer the present need. Temperature will not be a factor with forced air—but tightness will be—so the wall should be thoroughly mortared.

The consensus of opinion seems to be that the simplest type of plenum is desirable and this simplest type is a continuation of the brick walls up high enough above the furnace body to get the thimbles through the walls and into the space above the radiator or drum. Efforts to lay up "cistern" tops (meaning arches) or fancy rounded tops like Sketch K are very workmanlike in appearance, but probably not worth the expense from an efficiency standpoint.

It is interesting to note how thoroughly imbued this industry is with the idea of keeping air space between casing and furnace body uniform in cross section even though this requires complicated masonry fitting or use of metal. The sketches show some of the ideas for keeping this



| Individual Reporting | Wall to Be How Thick | How Inside Corners Are Rounded Off | Construction of Top |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------|------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Frank E. Anderson Terre Haute, Ind. | 8" double 4" single | Left Square | See Sketch A |
| J. E. Grumbein Lebanon, Pa. | 10" (2 brick walls +2" air space) see Sketch C & D | See Sketch C See Sketch D | See Sketch E |
| F. C. Nolting Elgin, Ill. | 4" (1 brick laid flat) | Split Large Tile (see Sketch F) | Brick on Wall Like Cistern Top |
| W. O. Thiele Indianapolis, Ind. | 4" for Furnaces up to 24". 8" for Larger Furnaces. Cover Inside Wall with 1½" Coat Lime and Sand Plaster | 2.49a Baffle Laid in Brick Wall at Grate Level on Up | 1½" x 1½" x 1½" T Bars 12" apart, lap 2" on brick. Lay ribs up. 20 Ga. plate in T's. 2 courses of brick slushed in thin mortar on plates. |
| Harry Bertossa St. Petersburg, Fla. | 4" Plaster Inside. See Sketch M. | See Sketch L | ½" curved Masonite (see Sketch K) or flat brick on steel (see Sketch J) |
| C. W. Hubertz Corry, Pa. | 4" Asbestos Plaster Outside | Metal or Brick Corner Insert | Flat—1 layer of brick on 14 Ga. steel plate |
| Elmer Siebert Rochester, N. Y. | 8" of Two Courses of 4" Brick | Build Inside Brick Wall to Conform with Furnace | Flat. T-bars with metal between. Add 2" asbestos pulp on top |
| Samuel C. Boyd Washington, D. C. | 9" Two Courses | Left Square | T-irons supporting brick and sand |

air space uniform. It is also interesting to note that in report after report readers state that in their area and in the brick casings they have seen, no corner fill-in is used, but the casing is built up straight and square and the inside corner left as is. In several instances readers expressed the opinion that this extra air space was one reason why there seemed to be so few burn-outs with brick casings.

It is quite possible, as the sketches show, to follow current metal casing practice and build an all-masonry, or a combination masonry and substitute board, or a masonry and metal plenum—smaller in area than the casing; probably showing better air flow characteristics, but, again, since this is an emergency measure, the simpler, straight up plenum and casing with thimbles through the wall above the furnace body are probably satisfactory.

Plenum is the Tough Problem

The one point where the masonry casing presents a problem is the casing top. Practice used to be to place parallel T-bars or channels or angles across the walls; then fill in between the bars with heavy plate and on top lay brick and sand. But it is quite likely that T-bars, especially, will be hard to find—angles and small channels should be easier to find but will also be hard to get. Besides this metal (bars and plates) probably weigh more than the casing frame and might weigh more than an all-metal casing.

To overcome this some non-critical material must be found to make the top. So far as we can find from a study of Sweet's catalog there is no

monolithic material in stone, terra cotta, concrete, clay tile which can be cast or made in a slab large enough to make a casing top without considerable metal reinforcing. Whether the required amount of reinforcing weighs more or less than T-bars, angles, channels or will be easier to get, we don't know.

Pre-cast Slab Materials

Some of the special slabs designed primarily for roofing application are suitable; are light in weight, use only a relatively small amount of metal as reinforcing and meet all requirements for heat resistance, moisture resistance, etc. To get such material a priority well up in the A1's is necessary. Examples of this type of material are—Gypsteel Plank (American Cyanamid and Chemical Corp.); Cantilite (Concrete Plank Co.); Featherweight Channel Slabs (Federal American Cement Tile Co.); Porete Slabs (Porete Mfg. Co.); Rackle Nailing Concrete Roof Slabs (Geo. Rackle & Sons & Co.).

The steel roof decking materials are admirably suited for top support but, again, we are told that necessary steel is not being given the manufacturers except for very high priorities. Examples of these deckings are units made by Milcor Steel Co., Wheeling Corrugating Co., R. C. Mahon Co., Detroit Steel Products Co., Ceco Steel Products Corp., H. H. Robertson Co.

As a suggestion, never tried out so far as we know, but perhaps having some merit, we suggest that a top can be made using one of the several temperature resistant asbestos boards, plaster boards, or similar products. In order to avoid use of critical metal such as top might be made

| Construction of Masonry Plenum | Leaders Out of Masonry Plenum Are | How Much Space Between Furnace and Brick Casing | Is Casing Same for Top, Round Radiator as for Crescent or Horseshoe | How Join Brick Wall to Furnace Front | Is Hollow Concrete Block Suited | Can Thin Partition Tile Be Used |
|---------------------------------------------------------------|------------------------------------------------------------------|-------------------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|-------------------------------------|
| See Sketch A | Metal collars or short leader section | Same as metal casing | Casing same but baffle different | Many mfrs. have special front. If not seal with cement | No | No |
| See Sketch E | Short leader sections | Same as metal casing | Yes | Square front lap. Front outside brick Round front, use slotted brick or cut slot in brick Butt front to brick and cement | No | For very cheap job. Short life |
| Large tile or straight up plenum 1 brick thick wall on top | Tile or metal thimbles 8" long starter, 26 ga., G. I. collars | Approx. same as metal casing | Same as metal casing | Casing square for top radiator and rectangular for crescent radiator | Yes | Good for plenum |
| Sketch E | Metal thimble (see Sketches K and J) | Same as metal casing | Crescent radiator should be closer fitting | Bend up 2 side wings and 1 top wing as per Sketch H. Bolt front to brick and cement | No—Too hard to cut. Too heavy for top | Hard to cut cleanly. Hard to mortar |
| Sketch E or J | Metal thimbles (see Sketch E) | Usually more space than metal casing | Same except needs baffling | Two angles. Leg to leg. Front bolted to one. Brick set into other angle | Don't know | Should be all right |
| Sketch E | Usually thimbles | Greater than metal casing | Same—follow furnace with inside wall | Front between two brick walls or No use special front | | |
| | | | | Recessed front (Sketch C & H) | Yes | Yes |

on a wood frame—the board on the bottom, of course—and so built that the assembly can rest on the top of the casing walls and be plastered in around the edges.

The walls of the casing, in such a construction, would also have to form the plenum with leaders taken through the wall and the top serving only to keep heat in and supporting no weight.

Two by 3 or 2 by 4 members should be sufficiently strong—depending on the span required. Since these materials possess good insulating qualities there should be no danger of firing the wood framing.

A suggested casing of brick and insulating board is shown in one of the illustrations.

Temperature Resistant Top Materials

Some materials which have suitable insulating characteristics are as follows: CSI Cane Fibre Insulating Lath (Certain-teed Products Corp.) ; Gold Bond Gypsum Lath or Wallboard or Sheathing (National Gypsum Co.) ; Celotex Insulating Materials (Celotex Corp.) ; Fir-Tex Insulating Sheathing (Fir-Tex Insulating Board Co.) ; Flintkote Insulating Lath (Flintkote Co.) ; Ins-Lite (Insulite Co.) ; J-M Insulating Board (Johns-Manville) ; Masonite (Masonite Corp.) ; Careycel (Philip Carey Co.).

There are no doubt others. A word of caution—consult a representative of the material you select and explain the use you intend to put the material to. Many of these products come in a variety of compositions—some of which may not be suited to this application. For example, an outside coating of asphalt may not be good

if the asphalt runs under plenum temperatures.

As to practicability and cost—brick casings should not be too difficult to lay up by any good mason. If a single wall is used without corner fill-ins, the brick work is easy. If a double wall is used with the inside wall following the contour of the furnace and thereby serving as a baffle, then the brick work becomes tricky and a good job may be hard to get.

In every instance a brick casing will probably cost more than our usual metal casing. In areas where masonry scales are high it is quite possible that a brick casing with corner fill-ins (not a double wall) may run as high as \$25.00 for a 4-inch wall.

Moulded-in-Place Casings

We are indebted to R. W. Menk of Joliet Heating Corp. for one interesting suggestion. He reports that there are several mixed-on-the-job casting materials now available which could be used to cast a monolithic casing if the contractor built a suitable wood form. The form would be double walled and the mix would be poured in place like concrete. No reinforcing would be required. These materials are light in weight, possess high insulating characteristics and, if necessary, can have suitable reinforcing ribs cast monolithic if the proper type of form was built.

This idea should have merit on any project where a number of furnaces of the same size are called for. The form would serve for many castings, could be built by a good carpenter and requires any common type of plywood. The top would have to be separate, of course in order to remove the inside form.



Left—Exterior of the 1870 house shown in the plans. Note wings and additions made from time to time. Below—Photo No. 1—A Typical Conzelman gravity system. This is in the house above. The farmer lowered the floor the depth of the concrete wall to give necessary head room.

The Farmer as a Heating Prospect

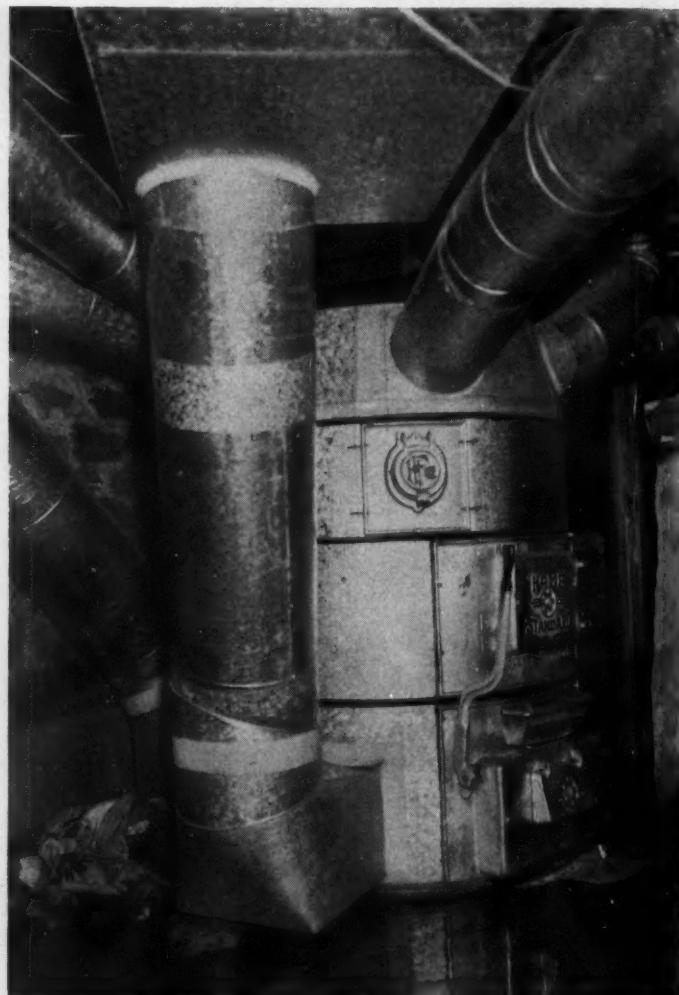
He's a mail order buyer; he's not especially impressed by high-powered sales talk; he's suspicious of any "tricky" selling ideas—but today he has money; he is permitted to buy, repair, remodel—in short, he's a good prospect if you know how to sell him. Here one contractor tells his methods and experiences.

IN TODAY'S search for prospects and markets where new heating plants can be sold and old furnaces repaired, remodeled and serviced—as these services are restricted by present industry limitations—what about the farmer?

Usually he is not located in a defense area. More times than otherwise the farmer's idea of better living conditions means adding rooms or services or remodeling old facilities instead of building a new house. He seldom rents rooms or makes rentable apartments out of unused house space. And he isn't given to buying a new site by a purling brook for a new house—he has to take the barn and chicken house along with him.

What kind of a buyer is he? Does he appreciate the comfort and conveniences of modern heating? Is he impressed by basement modernization for play rooms? Does the saving of a few dollars in fuel cost mean anything? Is the elimination of firing drudgery by application of automatic heat of any importance to him? In short, does he want the same things as his city relative?

If you operate in a large city; even down to the town of 35,000 population, the farmer as a



prospect probably never will interest you, beyond an occasional contact. But if you operate in a small town or village, you probably do work for farmers and may be wondering how you can increase your farmer sales. Sales can be made and one small town contractor who has spent many years studying and selling the farmer may have some of the answers.

Conzelman, Streator, Ill., Gets Farmer Trade

This contractor is A. Conzelman of Streator, Ill. His territory is Streator (population 15,000) plus a generous area round about including many small villages of retired farmers and the adjacent farming districts. Mr. Conzelman sells furnaces—any kind of a furnace from the simplest pipeless coal burner to the most expensive automatic oil-fired winter air conditioner. Also conversion blowers, oil burners, stokers. And a line of cooking stoves, water systems, cir-

culating heaters.

In his years in the territory, Mr. Conzelman has arrived at certain positive ideas about the farmer and the farmer's attitude toward heating. Since he has been successful in selling the farmer evidently these ideas merit consideration because they form the basis for a sales method which works.

Farmer Is a "Hard Buyer"

First, let's take a look at the farmer, as this contractor finds him—especially the farmer—prospect in 1942. Today, farmers generally are getting better prices for their products and therefore have more money than usual to spend. Farmers are also getting accustomed to paying higher prices for everything they buy and can, therefore, appreciate why certain prices are warranted. In Mr. Conzelman's area, in times past, when a farmer was charged \$1.50 per hour for labor his screams were something to conjure with—now \$1.50 per hour for labor is charged by the automobile repair shop, all sorts of building contractors, plumbers, etc. As a result, today, the farmer does not complain so loudly when he gets a bill.

Cold canvassing has always been a disheartening business among farmers, this contractor reports, because the farmer has a well developed



Photo No. 2—Neatness is the keynote of a Conzelman installation. By this neatness the usual "amateur" work of the handy man is spot lighted. Only by such neatness can the furnace man justify (in the farmer's eyes) the high labor charge of the "professional."

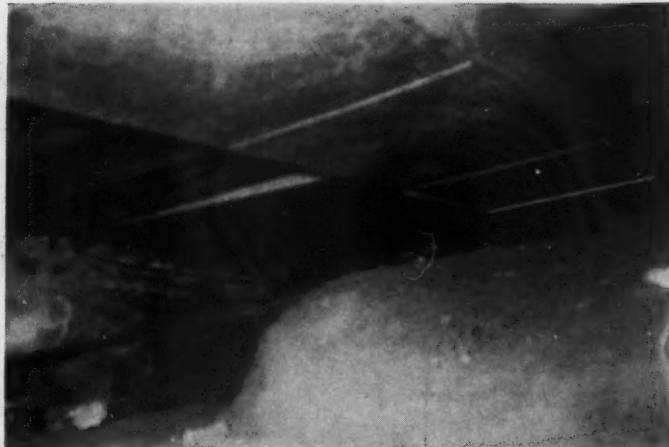


Photo No. 3—Part excavations are the rule, not the exception, in rural work—so duct work like the above must be a standard practice.

bump of caution and is apt to feel that canvassing proposals must have some "catch" to them. Most rural business "comes in the front door" or is worked up through word of mouth acquaintanceship. This condition has not been changed much.

Farmers have always been hard to "sell" because they are by training "mail order" buyers. The price quoted in the catalog is their guide to purchase and, since the usual retail store cannot meet these prices, the selling price problem has always been a tough nut to crack.

"Handy Man" Is the Worst Headache

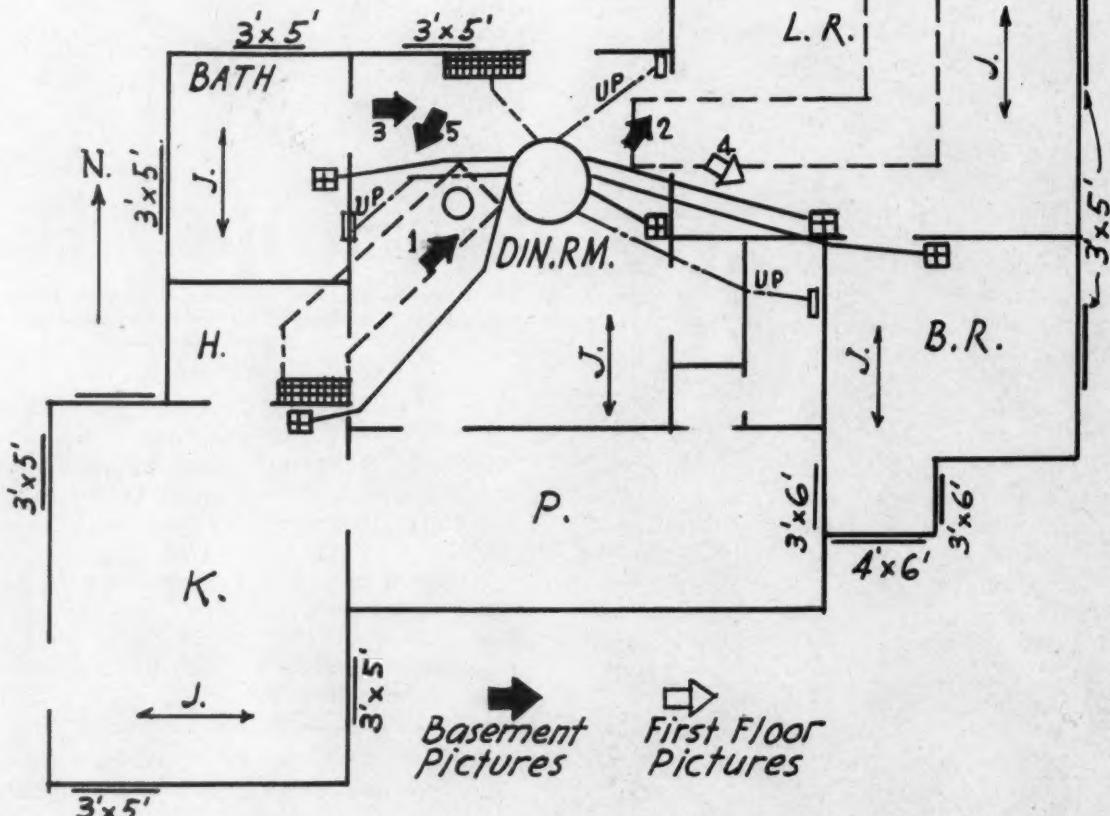
Also tough, says Mr. Conzelman, is the prevalence of the "handy man" disease among farmers. By "handy man" disease this contractor means the farmer buys a furnace through the mail order catalog and then gets the local handy man to install it. He does the same thing with plumbing, roofing, electrical work. These handy men work for fifty cents an hour—some of them are really capable and smart mechanics and can do as good—even better—work than many poorly trained trade mechanics.

Eventually, through years of handy maning, these men become good furnace men, plumbers, electricians so long as the job is routine and they are allowed plenty of time to finish. The fifty cents per hour rate is so attractive to farmers compared with \$1.50 per hour that the time element is completely lost sight of.

This year, with labor scarce in most areas and with handy men getting top wages in the construction of war factories many of these handy men have left home or are now demanding top wages. So with labor costs evened up the business man has a good opportunity to get his price.

The heating system in the usual old farm house varies, of course, from area to area. In Mr. Conzelman's area the usual type of heat is a stove or circulating heater or else a gravity or pipeless furnace. There is almost no radiator

First floor plan of 1870 typical house with the furnace and pipes indicated. Conzelman urges floor registers to save cutting. Stacks in corners of room or through closets eliminate costly partition work. This job is a success because no partition was used.



heat—some few new houses are so heated, but not old ones. Where there is a furnace its ten to one that the farmer or a handy man installed the system—the result is wide differences in room temperatures, parts of the system are patch-work, oftentimes rooms have never been heated because the farmer wanted to save a few dollars, and the installation was engineered by guess.

Whether there was an inadequate furnace in before or whether stoves were used, the job of installing a new Standard Code system is complicated by several typically farm headaches. First—no basement; of a too-shallow basement; or a wet basement.

Getting Basement Headroom Is Trick

Usually when a farmer decides to buy a furnace he also decides to excavate a basement. If he decides to buy a furnace and has only a fruit cellar or storage room that's the time to sell him the idea of enlarging the cellar or making a full basement. The furnace man's problem is to get on the job soon enough to make the farmer understand he must get six feet of head room or more. If he can't sell head room or arrives too late then pitting must be used or makeshifts accepted. Pitting has the trouble of catching

water which only an automatic sump pump can permanently cure.

The next big problem in heating old houses is how and where to run stacks. In the Conzelman area many old farm houses have "barn framing" meaning solid timber beams, girders, posts, often oak or other hard wood, which, to cut for stack boots, is a tedious job.

Construction Often Is "Barn Framing"

Another worry is the house construction. Many houses have no sheathing—there is lath and plaster inside directly on the studs and weather boarding outside on the studs. This means a high heat loss and accounts for the poor results often obtained by the farmer who sizes his own equipment from the catalog.

Along the same line, some farm houses are wood sheathed on the inside then have lath up and down for furring and horizontal lath and plaster for final finish. Getting registers through these walls, especially when the sheathing is hand cut plank and the plaster soft is another headache.

All of these problems, points out Mr. Conzelman, can increase the installing cost so the cautious heating man does not take anything for

granted—he pries up weather boarding; cuts holes through plaster and lath, lifts up floor boards or baseboards—in short he knows exact construction behind every register before he quotes a price.

The idea of this contractor is to use his best sales ability to convince the farmer that a floor register saves hours of cutting; that a stack run up the corner of a room and then plastered out of sight also saves much expensive cutting.

So long as the industry is permitted to sell forced air heating some of these difficulties can be economically overcome—but a gravity system requires that nicety of design and installation which insures comfort and can't be skimped, disregard of which brings trouble.

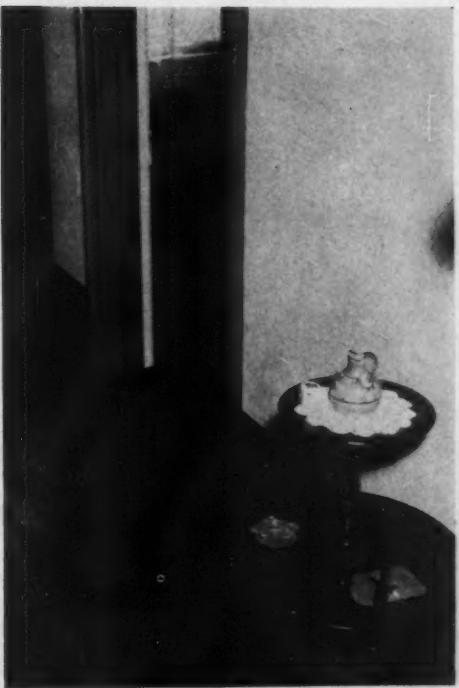
To show what our sample rural contractor does with gravity, several gravity systems were visited and two selected for photographing. The most interesting of the two is shown in floor plans and pictures. Since this one installation incorporates most of Mr. Conzelman's ideas of practical farm house heating we describe the job.

Typical Conzelman Job

As with many farm houses this one started out about 1870 as a two-story center with one story-wing for the kitchen. Some time in its life a second floor was added to the wing, a partial basement for storage was dug under the center. Lately another wing was built. From time to time partitions were moved, closets built and room usage changed. Stoves were used for heating.

The framing of the house is heavy, solid timbers; joists are 3 by 10's; studs 2 by 4's with frequent fire stops of bracing. (To knock out fire stops, Mr. Conzelman has a 10-foot long chisel.) Following his usual recommendations, Mr. Conzelman suggested floor registers to eliminate cutting. To get heat to the second floor the use of one stack in a corner of the dining room for bed room 1; (the stack was after-

Photo No. 4—
Typical floor register locations. These are in the dining room and bed room in plan facing. Standard Code sizes are insisted on as comfort insurance (the handy man doesn't know the codes usually).



wards covered with celotex to match the rest of the dining room walls); a stack through a storage room for bed room 2; a stack through the bath room wall to bed room 3 was recommended and sold—so no partition had to be cut into. An old chimney in the dining room (on a bracket) was taken down and the space in the wall was used for the stack to bed room 3.

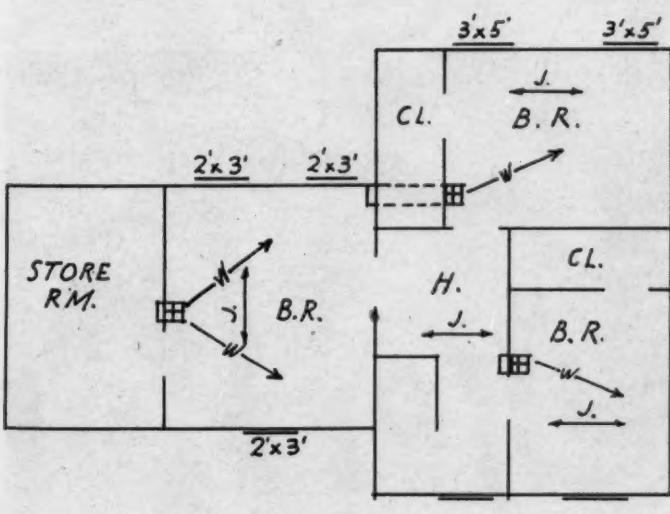
The basement was only a cellar, but the owner liked the idea of a full concrete basement and agreed to make it deep enough for the furnace. The old cellar walls were stone in good condition so most of these walls were not disturbed; but the floor was dug deeper, a concrete footing was placed under the old wall and a new concrete floor was laid. In this house water in the basement was not a problem so the basement is dry without a pump. Outside the furnace room walls enough earth was removed under the house to run warm air and return pipes.

All New Returns

There were no return airs of course, so three new returns were recommended—one each in the dining room, kitchen hall and living room. These, of course, are floor grilles connected into double joist spaces in the dining room. The short dining room duct connects with a round pipe as shown in photographic view Number 3.

The living room and hall returns are built up of wood and galvanized iron using wood 1 by 8's for the side rails and galvanized iron for the top and bottom. These runs are shown in views number 2 and 5. (One by 8 or 1x10 boards are also used because under old creaky floors, they add rigidity to the ducts.) On long runs of this type Mr. Conzelman installs a clean out panel in the bottom. To make the panel he places two S-cleats across the duct, about 2 feet apart. Into the lower fold of the cleat he slides a galvanized iron panel. Along one edge of the duct he screws

(Continued on page 81)





Schmidlin pushes insulation in attic floors, but tries to sell side wall insulation where possible. Hand application may do just as good a job in the attic, but the blow-in machine has a certain owner appeal.

Insulation Is "Plus" Business

FOR ten years the Schmidlin Bros. Heating Co. (6,000 furnace installations in Toledo since 1917) has operated as a part of their business a department selling insulation to home owners. Naturally, over so long a period, certain facts on insulation as a logical part of the heating man's activities have come to light.

Most important of all, as the title indicates, "Insulation is a plus business." Schmidlin means by that statement, that, for the furnace man, the sale of insulation should be a "side-line" on which only as much time and money is spent as the profits from insulation warrant, but that if insulation sales do not come "naturally" then time and money spent forcing sales may not prove profitable.

Dollars and Cents Savings Hard to Prove

In the experience of the Schmidlin Company, sales of insulation have proved difficult chiefly because it is hard to prove the very real saving insulation brings. Not that these savings can't be proved, they can, but owners seem to be immune to fine, tricky appeals; many of the usual selling methods such as telephone solicitation, radio advertising, door to door canvassing are too expensive for the results obtained by the furnace man who makes insulation a "side-line" to his

regular business.

Schmidlin, during the years they have sold insulation, have tried all these methods and others; they have set up a separate department which handles nothing but insulation; they have "forced" selling pressure to build volume and, in the end, have found that some simple sales method which is not too costly brings the greatest profits.



Every insulation application is properly advertised by large display boards like this. Such boards often make prospects in the neighborhood.

Insulation is Tied to Cleaning

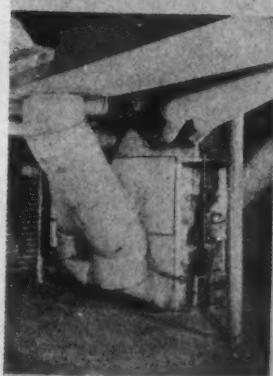
Schmidlin has such a simple sales method. It is based upon two inexpensive ideas. First, insulation is definitely tied to furnace cleaning. Every Schmidlin cleaning solicitation introduces insulation where insulation has not been installed. For example, if an order for furnace cleaning comes over the telephone, the owner is asked if he has insulation in his attic floor. If he has not, then the importance of insulation in reducing heating costs and providing lower summer temperatures is explained. If a salesman makes a call to solicit cleaning he asks if the house is insulated. If not, he tries to explain insulation then and there or makes an appointment to explain insulation.

Every quotation for a cleaning job or a repair job also carries an estimate for insulation in the attic. If a letter is used with the quotation, that letter carries an explanation of insulation. On the cleaning order form shown, where it says "Hereby authorize the Schmidlin Bros. Heating Co. To—" a quotation for insulation is filled in.

Side Wall Sales Hard to Make

It will be noted in the above that insulation "in the attic floor" has been mentioned. That's intentional because that is number two idea. Insulation in the attic floor is much easier to sell than insulation of the attic plus side walls. Furthermore, even though insulation in the walls does

HERE'S what is included in our "Stitch in Time" HEATING SERVICE



for \$350

- 1—Vacuum Clean furnace and smoke pipe.
 - 2—Vacuum Clean bottom of chimney.
 - 3—Vacuum Clean Pipes in furnace room.
 - 4—Paint furnace front with heat resisting paint.
 - 5—Check chimney flue for obstructions.
 - 6—Adjust chains and oil pulleys.
- Free—Test furnace for leaks with the New Smoke Bomb Method.

ALSO—Special Summer Plan on Oil Burners and Stoker Service

FIRST CLASS
PERMIT NO. 757
(REC. 110 P. L. & R.)
TOLEDO, OHIO

BUSINESS REPLY CARD
NO POSTAGE STAMP NECESSARY IF MAILED IN THE UNITED STATES

2c. - POSTAGE WILL BE PAID BY - 2c.

SCHMIDLIN BROS. HEATING CO.

West Bancroft St., corner Albion

TOLEDO, OHIO



A four-page direct mail piece has this cover. The booklet shows how government recommends insulation and stresses the "put-your-heating-plant-in-order" campaign.

bring decided advantages, it also raises the cost and makes it necessary to disturb the house—both sales hurdles. So to make the sale as quick and easy as possible, Schmidlin concentrates on attic floor insulation.

That attic floor insulation alone is advantageous has been proved many times over. In Toledo, for example, a very large percentage of all houses have 3 bedrooms and bath upstairs heated by 60 square inches of stack. If those upstairs rooms are not warm enough, insulation in the attic floor insures comfort at less cost than one or two additional heat runs. Also, it has been shown that this insulation reduces cold air drafts from the upstairs which is a common complaint in Toledo houses.

Time Payments Make Sales Easy

There is an interesting sales angle in Schmidlin's clean plus insulate campaign. If the old furnace is cleaned and repaired, the usual selling price is so low that the owner either cannot or does not like to ask for financing. But if he re-

Left—This form of order shows exactly the work ordered and when. Also, and important, how the work is to be paid for. On completion the owner signs and keeps a copy. There can be no later argument over payment, what was done, when, or by whom.

| | | |
|-------------------------------------------------------------------------------------------------|-------------------------------|----------------------|
| SCHMIDLIN BROS. HEATING CO. | | |
| 1398 W. BANCROFT ST., COR. ALBION | PHONE FOREST 0517 | |
| WE AGREE TO PERFORM THE FOLLOWING SERVICE | | |
| CLEAN | FURNACE \$ | |
| INCLUDING SMOKE PIPE AND FLUE BASE, PAINT FRONT. | | |
| CLEAN | WARM AIR PIPES @ \$ | |
| CLEAN | COLD AIR PIPES @ \$ | |
| CLEAN HOT WATER—STEAM PLANT \$ | | |
| RESET | FURNACE \$ | |
| REPLACE SMOKE PIPE | "Size) \$ | |
| \$ | | |
| \$ | | |
| DATE WORK TO BE DONE TOTAL \$ | | |
| When the above service is completed we agree to pay the entire amount to the service man. | | |
| Or | | |
| Signed | | |
| Street | | |
| Date | Phone No. | |
| Street No. | HEATING PLANT LOCATED AT City | |
| Hereby authorize the SCHMIDLIN BROS. HEATING CO. | | |
| To | | |
| | | |
| | | |
| For Which | agree to pay the sum of \$ | |
| Terms | Name | |
| COMPLETION CERTIFICATE | | |
| The work on Service Order No. has been satisfactorily performed and I have paid the operator \$ | | |
| DATE | | |
| OWNER | | |
| SERVICED BY | | |
| WHITE OFFICE COPY | YELLOW WORKMAN'S COPY | PINK CUSTOMER'S COPY |



Inexpensive mimeographed fliers like this are used at frequent intervals to Schmidlin's large mailing list.

pairs and adds insulation that makes the price such that financing is looked on favorably by the financing agencies and also makes the owner more agreeable to financing.

In this connection, Schmidlin's experience is that for the usual wage earning owner initial payment is all important. A one-third down payment with small payments over twelve months is a better appeal to the usual owner than a straight cash order of slightly more money than the down payment. And if the owner is a "defense worker," no down payment and payments over three years looks like a Christmas present. It doesn't seem to matter that the final amount is much larger than a cash repair order.

Blow-In Machine Has Advertising Value

As the front cover photograph and the others show, Schmidlin makes advertising capital of the blow-in machine. Whether or not the machine does a better job is open to argument, but there definitely is a sales appeal to the machine. Two men in four hours can lay a 25 by 25 foot attic with roll or bat insulation—the machine cannot finish any quicker and there is the added cost of owning and operating the machine but Schmidlin has been able to convince owners that shredded, evenly packed insulation put in with the machine is worth more money than hand laid.

To make the attic floor insulation return its greatest value, Schmidlin stresses the importance

of adequate attic ventilation. They have developed a special intake or exhaust louvred opening to replace windows or to be cut into the attic end walls. Two square inches of intake and exhaust opening for every square foot of attic floor is the rule by which the opening size is determined. Such ventilation reduces condensation in the winter time and removes hot, accumulated air in the summer.

New House Insulation Sales Are Costly

Finally, this company, after many years of persistent sales effort, has decided that insulation sales in new houses—for the furnace dealer—is mostly a waste of time. The builders would rather buy insulation from their lumber yard and have the carpenter or the handyman put it in. Also, many builders either are lumber dealer offshoots or they are tied into some lumber yard in such a way that the lumber yard has first chance at all material going into the house. Insulation can be and is sold in new houses—most new houses have some form of insulation—but the job of selling insulation to the builder is not a profitable effort for the furnace contractor, Schmidlin believes.

In homes occupied heating costs are available. Heating troubles are also very evident. These

(Continued on page 80)

The most amazing == opportunity in Toledo!

FREE
FURNACE • LEAK • TEST

IS YOUR FURNACE SAFE FROM LEAKS?
This new method of testing a furnace for leaks is now available to all home owners. It is absolutely sure. No mess in your basement! No disturbing your furnace! Takes only a few minutes.

DANGERS OF A LEAKY FURNACE
"Deadly poison gases" many times can be traced to a leak in your furnace, as well as soot, dirt and dust. There is no obligation providing test is made now.

A CLEAN FURNACE MEANS A CLEAN HOME
Our men are fully insured which protects you. Have your heating system inspected by an established heating concern.

PHONE FOREST 0517 or MAIL CARD TODAY

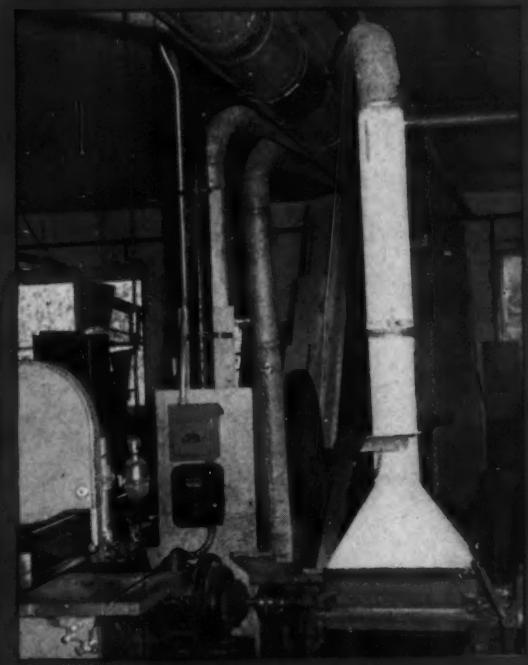
OIL BURNERS STOKERS ROCK WOOL INSULATION

SCHMIDLIN BROS.
HEATING CO.
Since 1917 - Over 5,000 installations in Toledo

Schmidlin's latest "trick" sales appeal is the furnace "bomb." The smoke bomb ignited in the firepot shows any crack, open joint, faulty flue. Owners accept presence of smoke at registers as conclusive evidence that the furnace needs attention.

AMERICAN ARTISAN

SHEET
METAL
SECTION



DEVOTED TO SHEET METAL CONTRACTING AND FABRICATING

Shall War Plants Shut Down? Shall Men be Laid Off? Shall Our Soldiers Die?

-ALL BECAUSE YOU DIDN'T SALVAGE ALL YOUR SCRAP IRON AND STEEL?

Unless the steel industry gets 6,000,000 **EXTRA** tons of scrap iron and steel this year, it cannot produce *all* the steel required for our war production program.

It's a serious situation. Because about half of the steel in every tank, airplane, ship, gun and shell comes from scrap—approximately 50% of every charge into an open-hearth or electric furnace is scrap.

There's a lot of scrap iron or steel in or around every plant or shop. Old, obsolete, idle machines—old line shafting and pulleys—broken or worn-out dies, jigs, templates, rolls, patterns, molds, tools, gears, cams, fixtures, trucks—old pipe, valves, radiators—idle water tanks and supports—unused smoke stacks and other structural items—anything made of iron or

steel which has lost its value in its present form. Don't overlook the scrap at home, too.

Dig it out. It's *urgently* needed—to keep war production flowing—to keep men at work—to protect our soldiers against the enemy.

Put a competent man or a committee to work on a special campaign of your own. Tell *every* man in your plant how important scrap is today. Post this story on your bulletin board, (we'll gladly send reprints). Pile up every piece—no matter how small. You'll be surprised at the amount you find. Then call your nearest junk or scrap dealer. He'll buy it from you—and send it on its way to a steel mill.

If you and every plant does this **PROMPTLY**, you'll be helping to hasten the end of the war—you'll be helping to save the lives of those who fight for you.

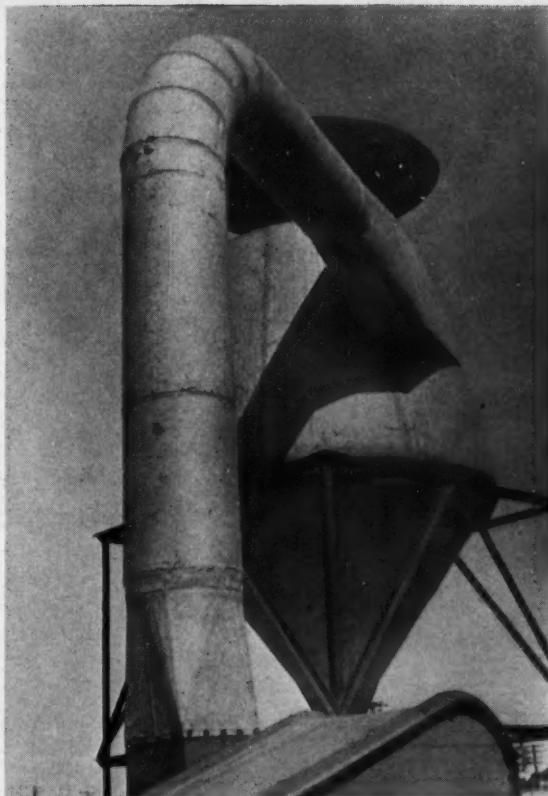


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In Cooperation with the U.S. Government's Salvage Campaign



Wood Waste Removal System in a Pattern Shop

Some old material combined with new, plus low losses through the system as a whole, obtained through use of "streamlined" branch-to-main-connections and a 2-inch loss at all hoods, feature this waste removal system.

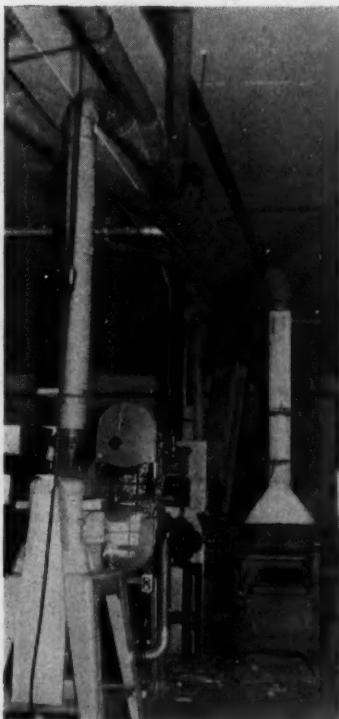
FOR a local pattern works engaged in supplying wood patterns to war industry foundries, the Norton C. Marshall Co. of Detroit revamped an old collecting system into the streamlined and highly efficient system shown on the plans and in the photographs.

In the revamping, machines were moved for greater shop efficiency and all old hoods except

the horizontal planer, spindle sander, and the two band saws, were used but connected to new piping. Also, some few pipe sections and fittings from the old system were used.

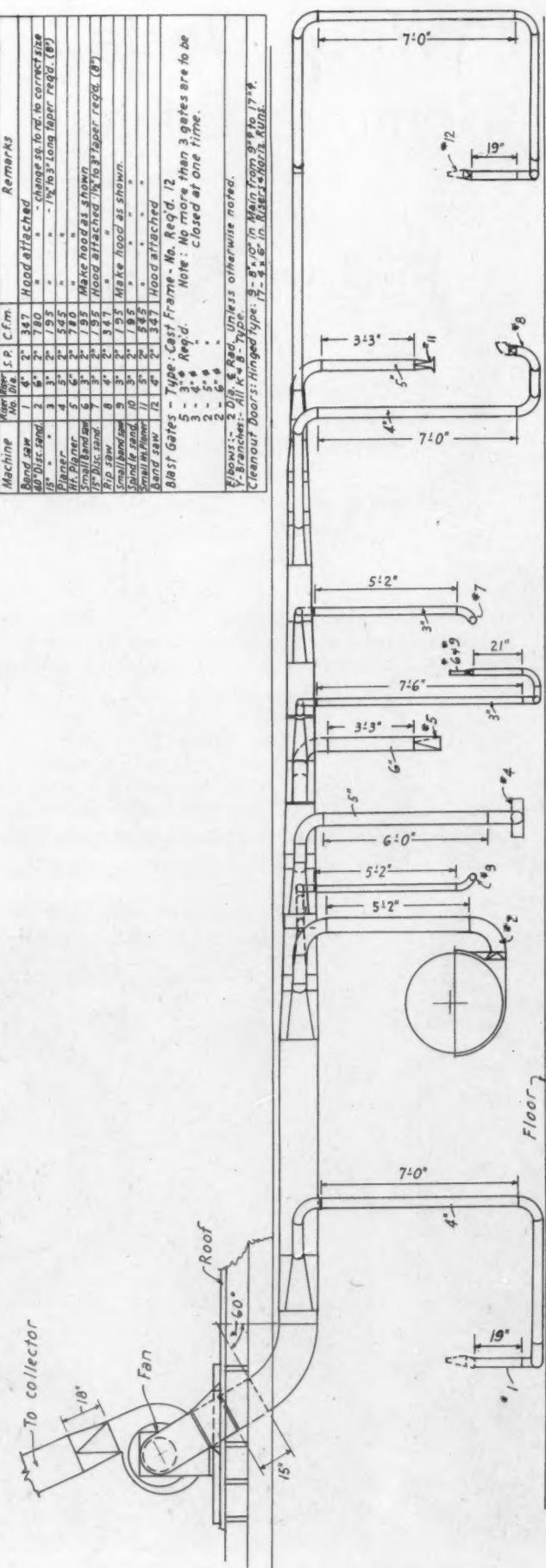
Low Loss Fittings

In the main, however, all the piping is new; so is the cyclone and the line from fan to cyclone. Greater efficiency and reduced resistance is obtained by using the K&B Y-branches (see photo-

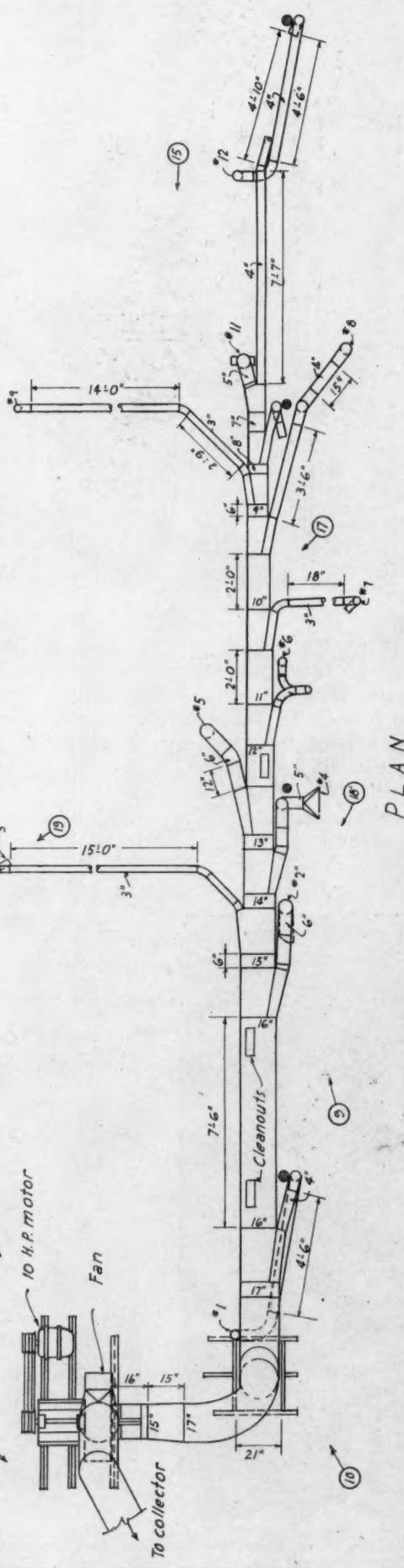


Above—Round-to-rectangular, low speed entrance transition. Left to right, below—looking toward the fan at a point where a branch enters the main at every section. Collector and fan on roof. Closeup of K&B low-loss entrance fitting which the Marshall Company makes in two pieces from special patterns.

| Machine No. | Model No. | Size | S.P.C.F.m. | Remarks |
|------------------------------------------------------------|-----------|---------------|------------|----------------------------------------------------------|
| do. <u>Post. Saw</u> | 1 | 4" | 2" | 347 Hood attached |
| do. <u>Post. Sand</u> | 2 | 2" | 7/80 | n - change size to correct size |
| do. <u>Post. Sand</u> | 3 | 3" | 2" | n - 1/2" to 3" long taper reqd. (8") |
| <u>Planer</u> | | | | |
| <u>Hf. Planer</u> | 5 | 2" | 5/45 | n |
| <u>Small hand saw</u> | 5 | 2" | 8/0 | n |
| <u>Large hand saw</u> | 5 | 3" | 9/5 | Hood made as shown |
| <u>Rip saw</u> | 7 | 3" | 1/25 | Hood attached (16") later rev'd. (8") |
| <u>Small band saw</u> | 9 | 3/2" | 1/67 | " |
| <u>Span. J. Sand</u> | 10 | 3/2" | 1/65 | Made hood as shown |
| <u>Span. J. Sand</u> | 11 | 3/2" | 1/65 | " |
| <u>Band saw</u> | 12 | 4" | 2/37 | Hood attached |
| <u>Blast Gates</u> - Type <u>Cast Frame</u> - No. Regd. 12 | | | | |
| 5 | - | 3" x 4" x 15" | Reg'd. | Note: No more than 3 gates are to be closed at one time. |
| 2 | - | 5" x 6" | - | |
| 2 | - | 5" x 8" | - | |



ELEVATION



PLAN

On facing page—Plan of the system with engineering sheet showing new and old hoods, hood losses, cfm removed, etc. Note that branch entrances are arranged so only one branch enters each main section. Numbers indicate positions from which photographs were made.

graph) which "ease" the branch air into the main without turbulence and at low resistance. For these Y-branches the Marshall company has special patterns which permit joining very small branches (note 3 and 4-inch pipes on plan) to mains 16 inches and larger using the principle of an opening approximately equal to two-thirds of the main diameter vertically and very thin cross-wise.

All the pipe in this installation was riveted and soldered for air tightness; suitable ball and slip joints were placed to secure necessary flexibility and permit operating machines. Cleanout doors were placed in each branch and three doors are scattered along the main. The galvanized iron used was 22 and 24-gauge.

The 90-inch collector placed above the roof is a low loss, slow speed unit built of 18 gauge galvanized iron riveted and soldered as shown in the photographs. The inlet is round to rectangular tangent to the exterior to reduce resistance and to impart to the air the swirling movement which begins to throw out the conveyed material as soon as the air enters the collector. From the collector the material dumps into a bin housed in a room attached to the shop.

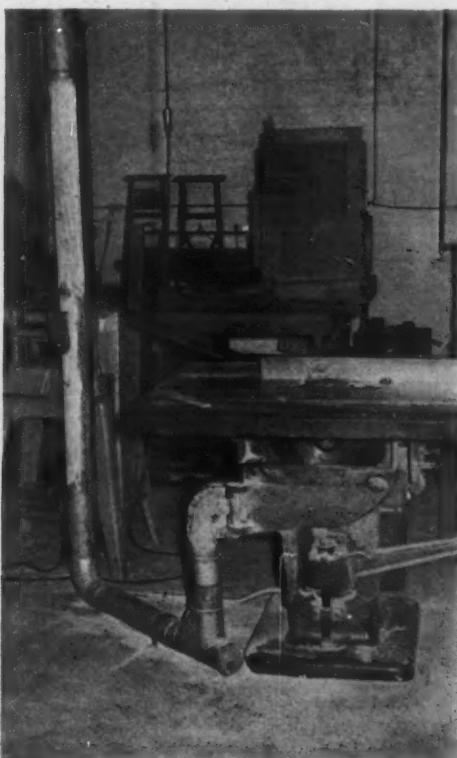
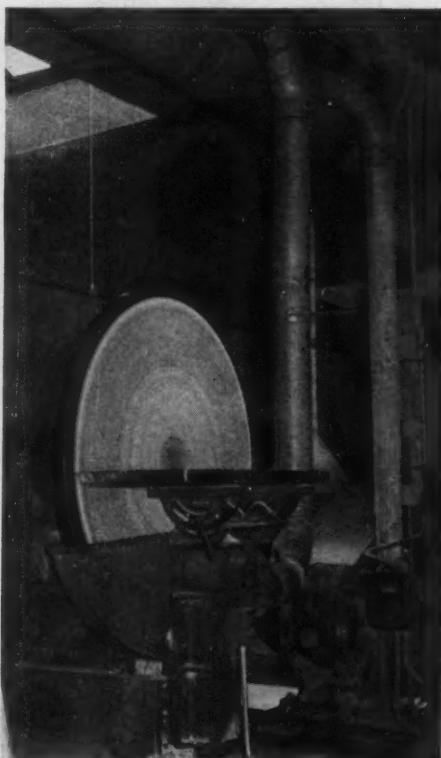
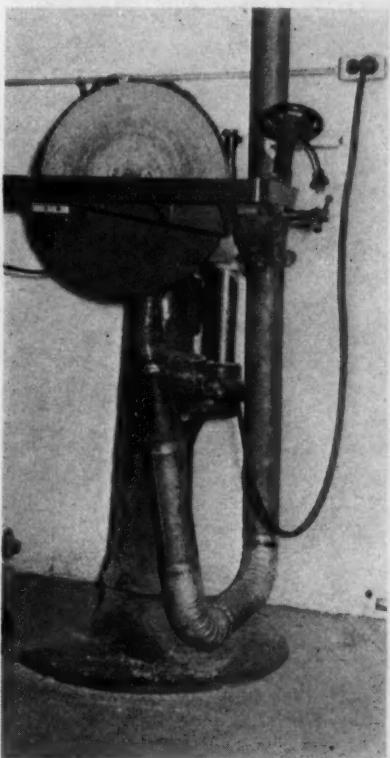
Most of the engineering details of the system



Closeup of the K&B streamlined branch-to-main connection showing flat but deep throat of the branch. Photo 18.

are shown in the tabulation on the plan. Whereas the usual wood waste collecting system will be designed to operate against as much as 7 inches of resistance, this system shows only 2 inches in the hoods (see table) plus 1 to 1½ inches in the cyclone and 1 to 1½ inches in the main and through the fan—total approximately 4 to 5 inches. This permits slower fan speed and less wear and tear on the system.

From the tabulation it will be seen that velocities in branches pretty consistently show just over 4,000 feet per minute while velocities through the main, up to the fan, show somewhat over 2,500 feet per minute. Velocity between fan and collector is almost 3,000 feet per minute.



Small vertical disc sander machine hood was so "close" that dust was thrown off until slot was widened. Large vertical disc sander with original hood which is "pretty low" and under heavy dust might have to be raised. Rip saw line shows typical cleanout, but there is no floor sweep in this system. Photos 19, 10, 9.

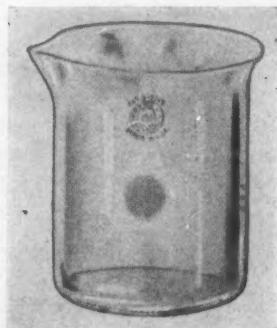
Laboratory Equipment for Finish Testing

By James G. Shelton

IT is the purpose of this discussion to present a description and list of the basic equipment for a finish testing laboratory in which finishes and finishing materials may be checked for quality and cost and where trouble-shooting for a finishing department may be pursued. No effort has been made to include intricate, expensive devices designed for special test procedures. Rather, the equipment mentioned has been selected for its general usability in connection with average finishing problems. This group of equipment can, of course, be expanded as there is need.

Glassware

The finishing laboratory, like most analytical laboratories, must be stocked with a certain number of various pieces of general use glassware.



Left and center — Typical glassware — beaker and graduated cylinder to mix and measure materials.



Such glassware includes beakers, graduated cylinders, test tubes, stirring rods.

It is suggested that there be at least five beakers each of 10, 50 and 100 milliliter capacity, two of 600 milliliter capacity and one of 1000 milliliter capacity. The regular form, with pouring lip, is best for all-around use.

For measuring volumes of finishing materials, thinners and reagents, for preparing test solutions, etc., graduated cylinders will be found very useful. One each of 25, 250 and 1000 milliliter capacity will answer most requirements. The 250 milliliter graduated cylinder can do double duty in acting as the cylinder used in making specific gravity determinations with an hydrometer.

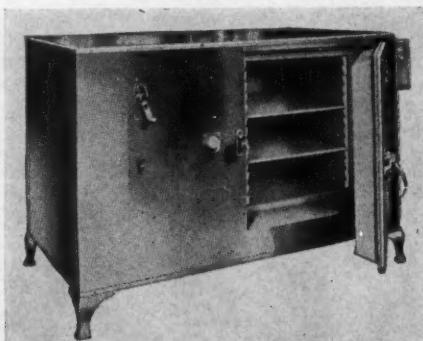
Test tubes and stirring rods are also items for which many uses will be found. One dozen test tubes of the 150 millimeter x 20 millimeter size are suggested. Stirring rods, of which there should also be at least one dozen, should be a

minimum of eight inches long, of $\frac{1}{16}$ inch diameter flint glass stock, with rounded and smoothly fused ends.

With the exception of the stirring rods, it is recommended that all glassware be of Pyrex grade. Such glassware is heat and shock resistant and is well worth the extra cost.

Thermometers

Thermometers are an absolute essential in any finishing laboratory. There should be at least one set, and preferably two, of general laboratory thermometers for measuring the temperatures of thinners, finishing materials, testing solutions, etc. One of -5° to 220°F . and one of $+30^{\circ}$ to 600°F . (both mercury filled with etched stems) are recommended.



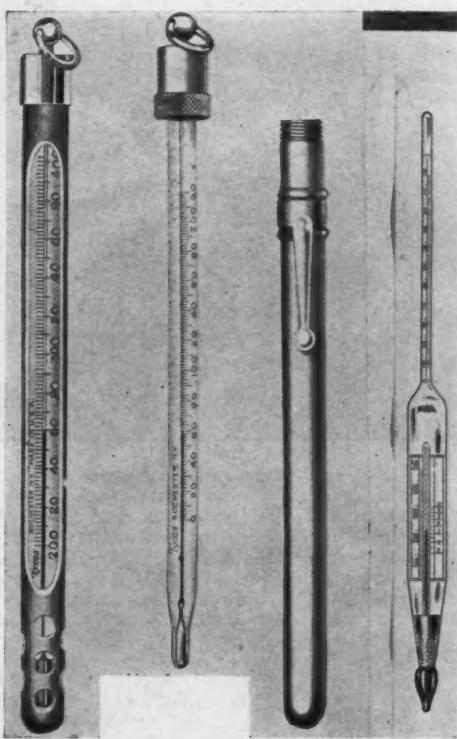
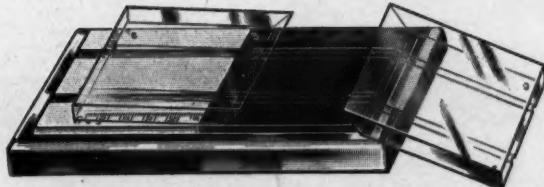
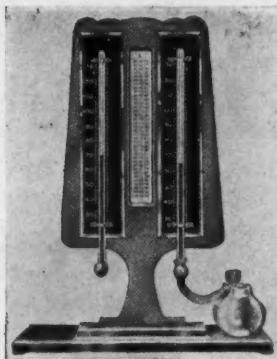
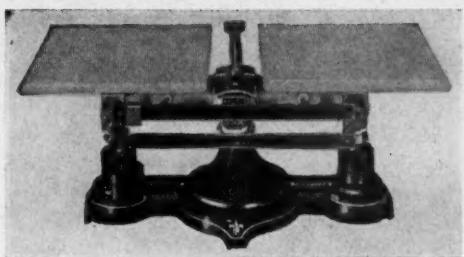
Ovens for drying or baking a finish should reach 600°F . and usually will use electric heat for its cleanliness and ease of operation.

For use in checking temperatures in baking and drying equipment, a maximum registering thermometer is suggested. These instruments are made on the same principle as the clinical thermometer, that is, the mercury column will remain at the highest temperature to which the thermometer is exposed.

While hygrometers in general possibly have no place under the heading of thermometers, the wet and dry bulb thermometer type of hygrometer is included here for lack of a better place. Where lacquers are used and blushing is a condition to be considered, a wet and dry bulb thermometer set for determining humidity of the air will be of much help.

Heating Equipment

Heating equipment for the finishing laboratory is of two kinds, one, a device for heating testing solutions, boiling water, etc., and the other, an



Above—Scale for measuring materials should register to 1/10 of a gram and to 1,000 grams. Wet and dry bulb hygrometer to establish room conditions. Pfund (hiding power) Cryptometer, or a less expensive instrument, is used to test hiding power of a material. Low range thermometers (-5° to 220°) and high range (30° to 600°) and a hydrometer to test specific gravity.

oven for drying and baking finishing materials, etc. In the first group, either a simple Bunsen burner or an electric hotplate may be used. The Bunsen burner is probably the cheaper of the two, but an electric hotplate is more convenient in that no stands, holders, etc., are required. Furthermore, in the case of the Bunsen burner there is always the hazard of an open gas flame.

For the second type, a small electric oven is suggested. This oven should be able to reach 600°F . Such an apparatus is clean, its temperature can be regulated closely and a hundred and one uses will be found for it. Gas burning ovens can also be obtained, but again there is the fire hazard mentioned above.

Scales

Many tests require the weighing of various materials and articles such as pigments, thinners, reagents, finishing materials, panels, etc. A double pan trip scale balance of 2000 gram capacity and 1/10 gram sensitivity is recommended. A set of weights to be used with the scales, of 1 gram to 1000 gram range, is also recommended.

Hydrometers

In determining costs, checking specifications, making tests and controlling finishing materials, specific gravity is often an important datum. For determining the specific gravity a set of precision hydrometers ranging from 0.700 to 1.600 in steps of not more than 0.200 is recommended.

As pointed out above, the 250 milliliter graduated cylinder may be used as a hydrometer jar.

Stop Watch

For measuring viscosity, baking schedules, thinner evaporation rates, dipping withdrawal

rates, etc., some timing device is required. For this work it is advisable to have a stop watch because of its accuracy and convenience. A one minute sweep stop watch, graduated in seconds and fifths of seconds, or one graduated in tenths and hundredths of a minute may be used. If it is possible, the stop watch should also have an interval timing device for determining cumulative time of intermittent operations.

Viscosity Tester

Perhaps the best and most convenient way to control finishing materials is by viscosity rather than by specific gravity or by volume, etc. Any one of a number of devices for determining viscosity may be used. One of the simplest and most inexpensive forms is that employing the flow principle as embodied in the Ford viscosity cups and Zahn viscosity cups.

Micrometers

Micrometers are always a necessity in a finish testing laboratory, particularly for measuring the thickness of films of organic finishes. If it is possible, a micrometer having a Vernier scale should be obtained in order that more accurate measurements than are obtained with an ordinary micrometer may be made.

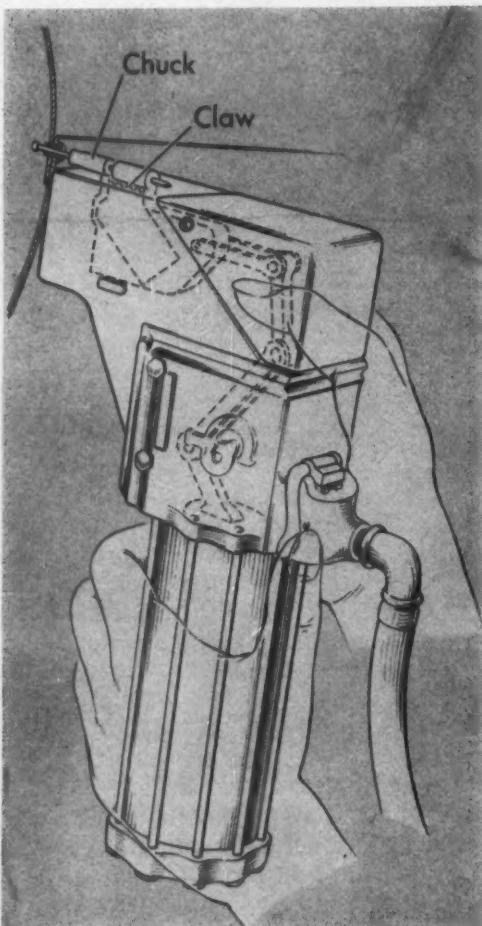
Hiding Power Indicator

One of the most important characteristics of any organic finishing material is its hiding power, that is, its ability to hide the surface on which it is applied. Devices for determining hiding power may consist simply of a sheet of glazed paper, patterned in black and white, over which the material is applied to such a thickness that

(Continued on page 84)

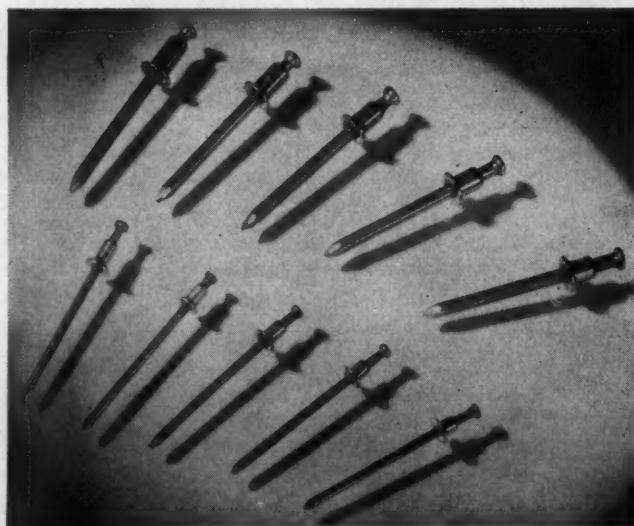


The United-Carr rivet is slipped on a common nail and placed in the prepared hole. The "squeezer" (below) grips and pulls the nail while the chuck presses against the rim of the rivet. The nail "squashes" the rivet and then breaks off leaving a tight rivet. Right—rivets come in many sizes.



OUT of the war and the nation's need for speed in sheet metal assembly has come two interesting developments in the heretofore prosaic job of riveting sheet metal pieces together. These two developments are the "blind" fastenings of the United-Carr Fastener Company of Canada, Limited, and the new "explosive" rivets by Du Pont.

"Blind" Riveting— Explosive Riveting (Two "War Babies")



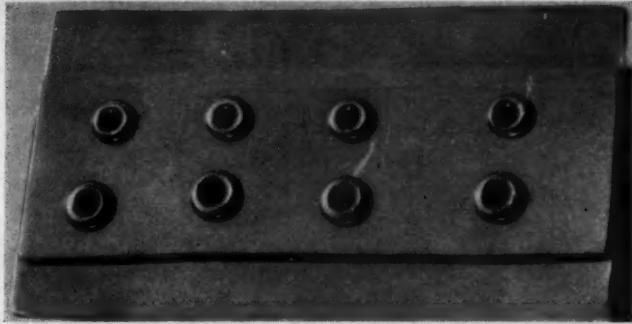
As the names imply these rivets make it possible to rivet from one side, without any back-up dolly in heretofore "blind" spots.

United-Carr Rivet

The United-Carr rivet is a hollow, low-cost rivet stamped out of strip stock and is furnished in over 40 sizes ranging from $3/32$ to $3/16$ -inch diameter and varying in wall thickness from $18/1000$ to $27/1000$ of an inch. There are also many lengths. In materials, the rivets are made from Monel, steel and duralumin.

To set the rivet from one side the rivet is slipped on a commercial nail of plain carbon steel necked down under the head. The shank of the nail is used as a mandrel. In fastening, the nail with its attached rivet blank is slipped into the rivet hole from the front side. A pneumatic squeezer is used to set the rivet.

The claw grips the shank of the nail and pulls while the chuck presses firmly against the lip of the rivet and holds it tightly against the face of the sheet by application of air pressure. Simultaneously, by one pull of the trigger, the claw pulls the shank of the nail, thus expanding the inside end of the rivet to fasten it tightly against the inside surface of the work. The necked down nail is so designed that it will break when the expansion has reached a point sufficient to provide maximum holding power. The head falls off in-



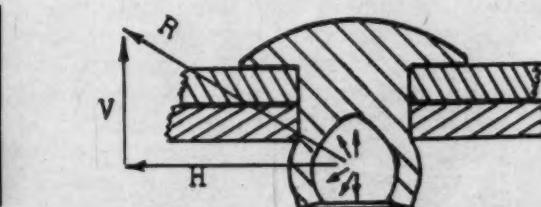
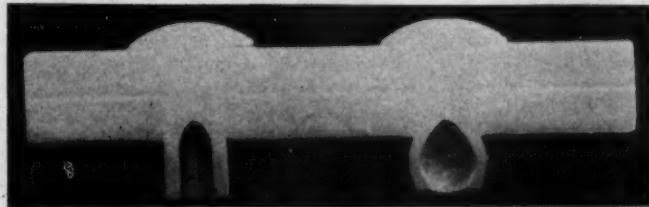
Front (left) and rear of laminated sections fastened by the new United-Carr rivet. Where required the holes can be plugged air-stream tight with a special compound.

side and the shank is pulled outside to make a fastening as firm as a solid rivet.

It has been found that the hollow rivets can be driven from 5 to 6 times as fast as conventional solid rivets in "blind" spots. As many as 20 rivets can be pulled in one minute by two men—one applying barium chromate and placing rivets, the second man pulling rivets with the squeezer. The purpose of the barium chromate is to insulate the rivet from the structural sheet.

Du Pont Rivet

The Du Pont explosive rivet, as its name implies, has a high explosive charge in a cavity in



Above—Cross section of Du Pont rivet in place ready to fire (left) and after being exploded (right). Right—Riveter with gun at work. When the rivet charge reaches 130° C. there is a moderately loud explosion and the shank expands to the barrel shape shown above. The gun weighs only five pounds and will explode several rivets per minute.



the shank. Heat applied to the rivet head by an electric gun detonates the charge. The explosion expands the charged end of the shank thus forming a "blind" head and setting the rivet. The whole operation is performed from the front side.

Under the best mechanical methods now employed a skilled workman can set about 2 to 4 of these "blind" fasteners a minute after they have been placed in the holes. The rivets may be installed at a rate of 15 to 20 rivets a minute, once they are in place.

The electric riveting gun (see photograph) weighs less than five pounds.

So finely has the explosive charge been contained
(Continued on page 78)

Fabricating War Products

[Sub-contract Gadget for a Plane]

By Ernest E. Zideck
Sheet Metal Consulting Engineer

Some war item "gadgets" cannot be named; their use often cannot be guessed at. This article describes two such small items used in planes and fabricated in several thousand units a month. Mr. Zideck explains how welding, plus shop made jigs and fixtures, make these items "manufacturable" in small shops.

THE modern plane or bomber is equipped with a multitude of gadgets manufactured, complete, by sub-contractors, and delivered to the plane maker for simple mounting; and quite a few of these accessories are constructed of sheet metal. In this article we shall deal with two of the items, small in size, but not so small in the service which they perform. Because of the army and navy rules governing publicity in respect to aircraft parts, we shall deal here with the problems of production exclusively, divulging no names nor the particular function of the two accessories under discussion.

In the accompanying drawings the Views 1, and 2, respectively, show the two items as they look after completion for delivery. Both are constructed of 20 gauge steel, acetylene or arc welded, with the tubular projections brazed on. The tubular parts are partly threaded for fittings and partly provided with beaded portions for rubber tubing or hose to slide over and form a tight connection. To prevent rusting of the steel body, the completed product is plated by immersion. Needless to say, the tubular parts must fit their counterparts provided in the plane, and their placement and brazing in position must be up to specifications. Also, both of the items are tested for leaks under 25 lbs. pressure, so that the welding and brazing of the components must result in absolutely leakproof joints.

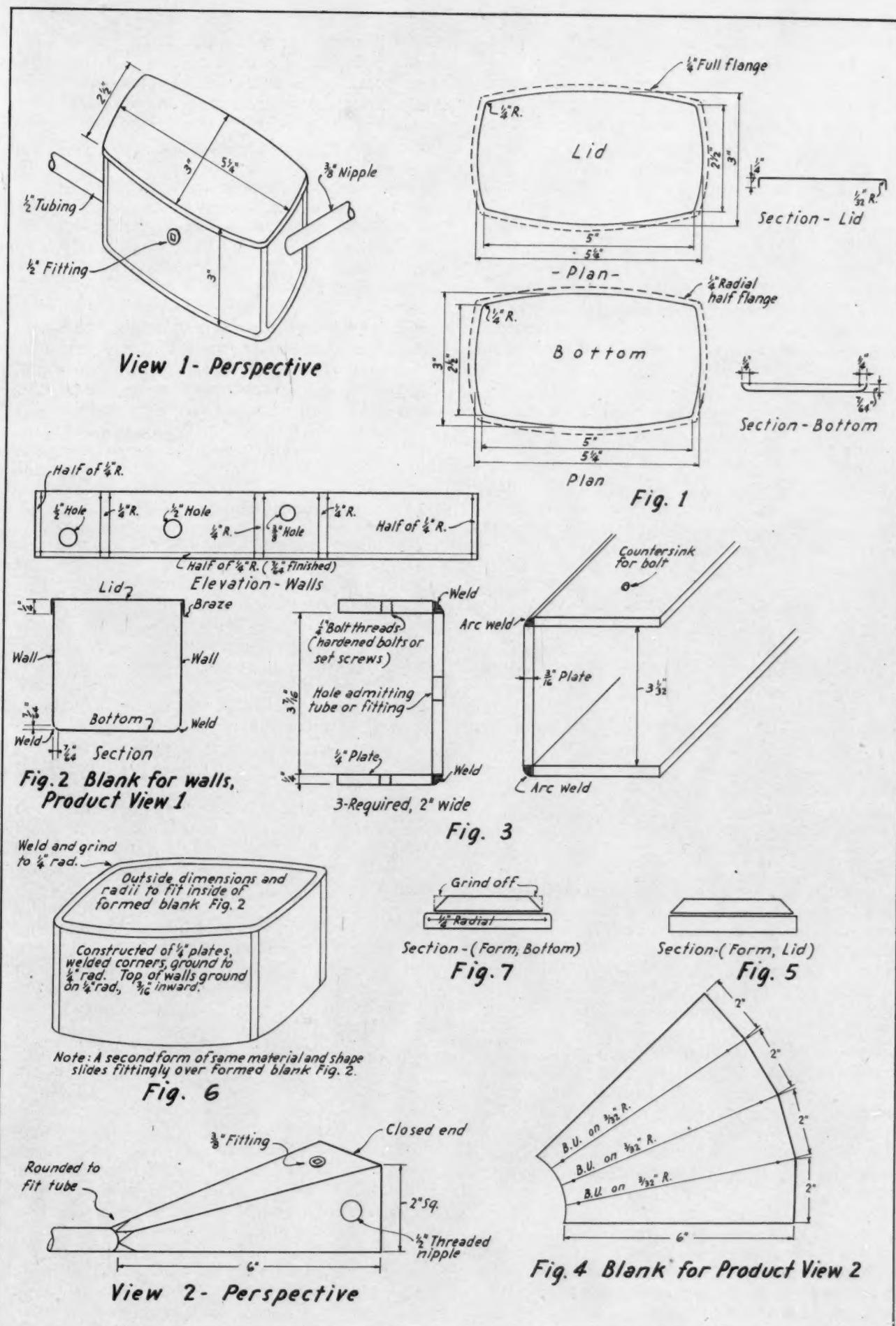
These and similar plane accessories are required in about four thousand units per month, more or less, just as the output of the particular aircraft calls for. Obviously, with the planes being wanted for service at the various fronts in a hurry, the accessories must be forthcoming on schedule, and the fabricator contemplating the manufacture of the one or the other item must first ascertain the date of initial delivery. His plans for producing and delivering the first thousands of the units on time will govern the procurement of means by which he figures to do

the work. Production processes will be subordinated to the facilities at hand and to means procurable in time to be of use in the manufacture. With practically all tool and die shops busy on prior orders, the procurement of the more efficient productive means on time would be problematic. And the small shop especially lacking presses of sufficient capacity to stamp or draw the steel bodies, would most likely resort to other, locally and on time constructed means with which to do the work.

Welding Enables Small Shop to Bid

It is exactly this situation confronting the prospective fabricator with which we shall deal here. And to better illustrate the situation, we shall picture it in the following: "Either one or both of the accessories shown, or a similar one, might be a sub-contract item. The contract calls for delivery of 2,000 of the units in three months from date, with subsequent deliveries of 3,000 per month. The subcontractor will look at the sample displayed and conclude that the item is a stamping proposition, and having no facilities of the kind, will pass up the chance of getting into war production. Another subcontractor, having common stamping facilities, looking at the sample will pronounce it a "deep-drawing" product, and having no press which would do the work, will give it up. A third contractor may have all the machines for the work but, considering the present difficulty of getting dies made, and the short three months time in which to deliver the units, will do a little figuring and then pronounce the proposition unattractive, bound to get him into trouble."

And yet, with a little ingenuity applied to the problem even the small shop would be safe to take up the work. What appears to be a "deep-drawn body in the sample, is most likely a welded construction composed of a radially flanged bot-



tom and a flat steel strip formed to the right shape, the joint welded, the wall flange rounded to meet the bottom flange, the two parts acetylene or arc welded together and abrasively finished to leave no marks. In absence of proper dies and stamping facilities, the radial flanging on the two parts may be done on shop constructed forms, and similar means may be employed doing the flange on the lid. In the drawings are shown the blanks of the bottom, the lid, and the body or, wall. The forms, made up of $\frac{1}{8}$ or $\frac{3}{8}$ inch steel plate, the body form welded in its joints, are indicated here by drawings. Fig. 4-5-6. The two blanks, for bottom and lid, are of the same shape, with the bottom blank slightly smaller, as shown in Fig. 1. The steel strip furnishing the walls receiving the bottom and the lid, is shown in Fig. 2.

Press Brake Saves Much Hand Work

While the small shop lacking stamping facilities could do the work by hand flanging over above forms, another shop having a press which will do the simple flanging over the form at one stroke, might choose this process, constructing the forming tools accordingly. But a good acetylene or arc welder is indispensable. And so is an outfit and a man doing the abrasive finishing work. In this construction the holes over which are brazed the tubular connections are provisioned beforehand, in flat. For the brazing on of the lid and of the nipples to the body a fixture is constructed locally, holding the components in the right position, liquid brazing compound is applied to the joints and the whole is exposed to oven or furnace heat. This fixture, in two or more units, must be figured out and made up by the fabricator himself, clamping into it the components and exposing it to the heat, while the additional of the fixtures are being made ready for the oven. A fixture of the kind is indicated in Fig. 3.

In Fig. 4 is shown the blank for the body of the accessory, View 2, which is simpler than is accessory View 1, but which nevertheless presents problems not encountered in the former. The blank is braked with the brakings remaining about $\frac{1}{8}$ inch radial. An inner form is constructed of welded-together steel plates, the outside dimensions of the form equalling the inside dimensions of the rectangular, conical body. An outside form is made, its inside dimensions equaling the specified outside dimensions of the cone. The sheet metal part, braked as described above, is inserted into the female form, and the male form is pressed into the sheet metal part, the operation completing the part's shaping to specified dimensions.

The problem arises of how to operate these tools. A press seldom has the required stroke. But if a press brake is available, we may proceed as follows: provide the male form with a 12 inch long stem fitting into the brake's die-hold; move the die-hold outside of the brake bed proper,

allowing for operation outside the brake bed; procure a pedestal for the female form, fastening it to the pedestal in a position to allow the male form operating centrally above it; have a block ready to insert under the pedestal; insert the braked-up sheet metal cone over the male form and release the brake; the male form will press the sheet metal into the female form, giving it the right shape and dimensions. True, this process will necessitate the moving of the block under the pedestal for each operation. And plenty of lubricant must be used in the forms to facilitate the extraction of the formed part pressed into the female form.

It might work out better and quicker to construct a vise-like contraption holding the two forms; with the operation of the vise-handle pressing the sheet metal body into the right shape. Or, it might be possible to operate the forms in the punch press, the sheet metal part inserted over the male form, the female form inserted over the sheet metal, the stroke doing the shaping and dimensioning.

Processing Forms Save Time

The above processing of the braked-up sheet metal part is necessary because the mere braking of the part would not result in uniformity and the specified dimensions; and the discrepancies in the four walls obtained by mere braking would not pass inspection. On the other hand, completing the shaping of the braked part in the above forms would render each part alike, more like a stamped product in uniformity and measurements. But granted that we construct the forms and their mountings and proceed as indicated, the shearing of the blank and its braking can be accomplished in less than three minutes' time; and the processing of the part through the above forms might take three more minutes; six minutes' time in all, and the part would come out of the forms like a stamping would, with the metal joining snugly, ready for welding.

After the sheet metal cone has been solidly joined by welding, we weld on the bottom, Fig. 5, and do the abrasive finishing on it, removing all traces of the weld. Then we proceed with the tubular connections to the part, using a fixture to clamp in the components, doing the brazing by oven or furnace heat. After that we cork the tube ends, except one, connecting this one to an air hose, and submerge the product in water, applying 25 lbs. pressure to test it for leaks. Should there be leaks in the welds or brazings, we repair them by using the brazing torch.

The tubular components, nipples and fittings, would have to be procured to specifications from a manufacturer specializing in that kind of work. And the plating of the product would be done on the outside, too, because we would not have the outfit to do it with. At any rate, the sheet metal constructions are the principal products, with the placement of the tubular parts com-

(Continued on page 78)

FIGHTING FIRES *before they start*

Most fires are preventable. A smoldering cigarette, flipped carelessly into a dark corner . . . a welder's spark flying unnoticed into a pile of oily waste—these little things can, and do, start devastating fires.

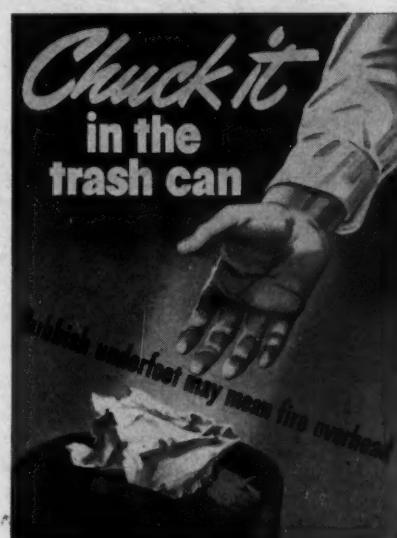
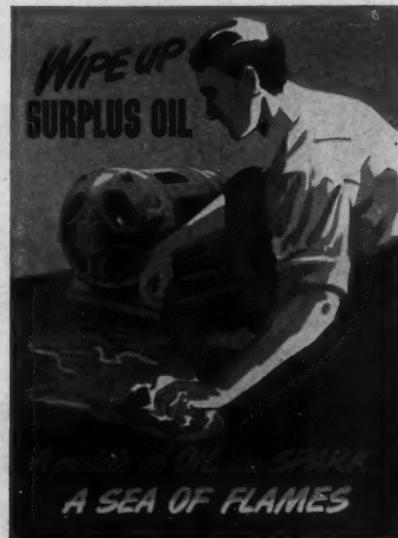
At the beginning of the war emergency, recognizing that fire is a treacherous and deadly saboteur of production, Bethlehem intensified its attack on the fire hazard. As always,

trained, fully-equipped fire-fighting forces supplied the backbone of the fire-control effort, maintaining day-and-night vigilance in every Bethlehem plant and shipyard.

But to bring home the vital importance of fire prevention and control to every Bethlehem employee, we've designed a series of posters in full color and are displaying them in key locations throughout all Bethlehem

shipyards and steel plants, which are now engaged in vital war work.

These posters are based on analysis of the most serious causes of fire and the all-important part of the human element in fire prevention. By pointing out to employees specific ways in which they can prevent or subdue fires, the posters are helping to minimize a potentially grave threat to the production of war materials.



Five of Bethlehem's series of fire-prevention posters. These posters are printed in full color. Each poster is designed to emphasize a specific problem in fire prevention or control.



War-production plant executives who are carrying on fire-prevention campaigns may find these posters of interest. A complimentary set will be supplied on request to Bethlehem Steel Company, Bethlehem, Pa.

AEROFIN



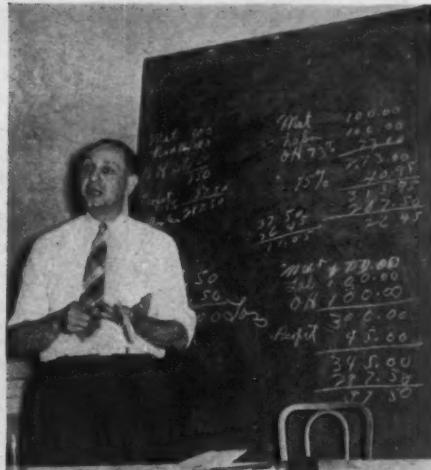
. . . and enough left over to tie a bow

★ In one year many miles of heat conducting ribbon is used in the manufacture of Aerofin cooling and heating coils—enough to go around the world and tie a bow. The pioneer in heat transfer coils, Aerofin is equipped, by virtue of design and experience, to accommodate every need.

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Left—Erie's WPB Priority Analyst C. S. Lefferdink answered many questions on current regulations and said he believed we can pull through if we make the most of our opportunities. Center—President for 1942 L. C. Trost (left) and Secretary M. F. Liebermann (right) thank WPB's Iron and Steel Branch representative H. M. Evans who came from Washington to explain the iron and steel order M-126 and to warn that inventory control is coming. Right—Overhead Expense Committee Chairman J. E. Davis discussed 1941 reports as shown in the tabulation with this report.

Pennsylvania's Convention

In a busy day and a half convention, July 16 and 17, in Erie, members of the Sheet Metal & Roofing Contractors Association of Pennsylvania crowded a pretty fair cross-section of the problems confronting this industry and still found time to enjoy a splendid fish fry tendered by the Erie local and a most attractive banquet arranged by the ladies' auxiliary. Incidentally, this year for the first time a ladies' auxiliary to the Pennsylvania association was organized with Mrs. Frank Coleman as the new president.

With President J. D. Sprucebank absent because of the serious illness of Mrs. Sprucebank, the convention was presided over by L. C. Trost, who was elected president for the coming year.

Problems Due to Regulation

Opening the program of addresses, J. D. Wilder of American Artisan outlined in some detail the problems now confronting the warm air heating and sheet metal industry and offered suggestions based upon current thinking of various Washington agencies, news analysts and leaders in our industry. Much of the difficulty our industry has experienced in obtaining materials can be traced, said the speaker, to the "binge" on which Army and Navy purchasing agencies have been traveling ever since Congress granted the Army and Navy practically unlimited funds for the expansion, purchase of materials, training, and general pursuit of the war.

Some hope for relief from existing scarcities and regulations may be anticipated from the new central control system which the President set up in June, with a combined production and resources board to coordinate the distribution of the materials and the production program of the United States and its allies. Army and Navy and the other agencies will tell this Production Board their needs as to materials and equipment. The Requirements Committee of War Production Board, on the basis of the statement of direct war requirements, will establish a broad policy for the distribution of scarce materials. A Bureau of Priorities will in turn determine the maximum quantities of scarce materials which may be acquired by each individual company in each individual industry. Thus, for the first time, the overall requirements of

each of the major agencies conducting the war will be correlated with essential civilian requirements and for the first time we may be able to find out just how much material our industry can expect to get.

It is hoped, said the speaker, that under this new program army and navy will be required to conserve critical materials just as well as the civilian industries are now required to do so.

The speaker then described the new July regulations establishing the Production Requirements Plan for all concerns using more than \$5,000 worth of critical metal per calendar quarter. Also Priorities Regulation No. 3, which simplifies the present use of Priority Rating and in some detail Priority Regulations 11 and 10 by which government now hopes to be able to determine just where all critical materials eventually go and from this end use to determine whether warm air furnaces are more necessary than septic tanks or washing machines or what have you. Since these regulations were published in full in the July issue of American Artisan, the speaker's analysis

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of these new regulations and their implications to the industry will not be presented in this report.

Labor and Substitutes

Mr. Wilder said that labor scarcity is now a serious problem, is becoming more serious month by month; that the smart contractor will therefore try to find old-time mechanics, younger individuals who will not be taken by the draft, and even women if these are employable.

On substitutes, the speaker pointed out that many mills will no longer accept orders for galvanized or black light gauge sheets; that the ship building program is being enlarged month by month and is even now taking materials away from planes, tanks and guns, so there does not seem much likelihood of more material for the warm air furnace-sheet metal industry. This industry is fortunate, said the speaker, in that we are able to use substitute material for duct systems in houses, also ducts in commercial building. We can readily use such material if Washington will give us just enough critical metal to make the necessary connections and fittings. As to substitute material for making gutters and downspouts, this material is becoming more difficult to obtain and it may be necessary for this industry to resort to wood gutters, clay tile downspouts, or whatever is available.

Conversion

For contractors interested in conversion to war production the speaker explained how difficult it has proved to obtain war products subcontracts. He described the operations of local and state-wide pools which, in spite of every effort, have been unable to obtain a single war contract. This situation, declared the speaker, will probably not be any easier because it seems that our production of war material is already ahead of quotas and it does not seem logical to believe that prime contractors will break up a smoothly functioning subcontractor organization just to permit another subcontractor to bid on a particular type of work.

Taxes

As to taxes, the speaker pointed out that all reports from Washington indicate that the tax burden is just

Fish!

How those boys from Pennsylvania can eat fish. We couldn't photograph all the tables, but these views show the star performers "doing their stuff." Two dozen perch was a mere beginning for the "champions."

beginning. Every type of tax, from the personal income to the corporation, also surtaxes, nuisance taxes and the excess profits taxes will probably be increased when the new tax measure is voted through.

As to construction, curtailment has been announced for new war product factories, also extension of existing plants. The hope of our industry, therefore, lies in those services which provide the home owner with repair, maintenance, remodelling of existing heating systems and exterior sheet metal and roofing work; of existing ventilating systems, air conditioning systems, material collecting systems, fume removal systems and other industrial operations served by this industry. What each individual obtains in the way of volume will depend upon that individual or his initiative, resourcefulness, and willingness to work hard.

Vocational Training

Reporting for the vocational training committee, E. H. Riesmeyer, Chairman, said that the type of mechanics we are now turning out seemingly will become good machine operators but will not be the all-around sheet metal mechanic of years gone by. This type of mechanic, in many instances, is now receiving wages they are not entitled to; wages originally based upon an all-around skilled mechanic capable of doing almost any sheet metal operation inside or outside, whereas today's machine operator can do one operation and one only. Therefore, this new type of mechanic is not entitled to the high wage rate paid the all-around skilled mechanic. The only salvation to the wage-rate problem, said Mr. Riesmeyer, is for the local associations to establish mechanic and apprentice training courses.

President Adam Tritsch, reelected president of the salesman's auxiliary for the coming year, declared that so far as the salesmen can see the picture, today's business man must build his business upon the same basis of integrity as formerly. He must have a good shop; he must pay his bills, and if he wishes to keep busy he must be progressive in his thinking and his actions. Many sheet metal and roofing contractors are excellent mechanics but are not good managers. Fortunately, there are only a few business men in this industry who are neither good mechanics or good business men, but even the few there are definitely

serves to injure the whole industry. From the salesman's viewpoint, the only activity which the industry can definitely now count upon is the repair field, and whether these repairs be to furnaces, or to metal roofs, or to composition or built-up roofing, or to existing industrial air handling systems, every contractor should make a point to try and get as much of this work as possible. Under today's conditions, the business man must use every resource to obtain business—he must telephone to as large a prospect list as possible; if he has money for advertising, he should advertise to his local area; if he can afford canvassers or solicitors, he should depend as much as possible on this type of activity. Lastly, every business man must make up his mind that today he must do more reading, must do more paper work than ever before, none of which is productive labor, but all of which is absolutely essential under the rules and regulations now imposed on us.

Trade Relations

The trade relation and policy committee, Frank Schimpf, chairman, reported that during the past year the only policy acted upon by the committee was that every organization should ask government agencies and every individual voter should ask his representative to try and distribute subcontract work throughout our industries.

The concluding event of the first day's session was a moving picture film, "Bridging San Francisco Bay," provided by the Carnegie-Illinois Steel Corporation and presented by Charles H. Fitzwilson, Engineer.



Professors from "Pitt", H. S. Parnes (left) and R. E. Slessinger (right) tried to explain what makes inflation and what we can do to protect ourselves. It was an interesting analysis warranting careful study.

War Production Board

An analysis of the present situation so far as the war production board is concerned was presented by C. S. Lefferdink, Analyst, Erie Area, War Production Board. The speaker pointed out that this country is at war and during war times it is impossible to prevent everyone from getting hurt. As to why contractors are finding it so difficult to get materials, Mr.

(Continued on page 71)

| No. | (Sales) Gross Business | Productive Payroll | Overhead | % of Overhead On Productive Payroll | % of Overhead On Sales | Salaries and Etc. | % of Salaries Etc., On Prod- uctive Payroll |
|--------------------|------------------------------|-----------------------|-------------------|-------------------------------------------|------------------------------|----------------------|---------------------------------------------------|
| GROUP No. 1 | | | | | | | |
| 1 | \$ 9,765.00 | \$ 3,894.00 | \$ 2,354.00 | 60% | 24% | | |
| 2 | 11,023.00 | 1,655.00 | 3,607.00 | 218% | 33% | | 19% |
| 3 | 15,131.00 | 1,768.00 | 2,007.00 | 114% | 13% | \$ 750.00 | 42% |
| 4 | 21,000.00 | 5,000.00 | 8,000.00 | 160% | 38% | | |
| 5 | 22,372.00 | 8,138.00 | 6,434.00 | 79% | 29% | | |
| 6 | 28,515.00 | 7,350.00 | 5,422.00 | 74% | 19% | 2,630.00 | 36% |
| 7 | 31,468.00 | 9,912.00 | 7,845.00 | 78% | 22% | 3,264.00 | 33% |
| 8 | 31,800.00 | 10,590.00 | 10,055.00 | 95% | 32% | 4,577.00 | 43% |
| 9 | 35,692.00 | 7,382.00 | 6,025.00 | 82% | 17% | 3,000.00 | 41% |
| 10 | 37,147.00 | 9,773.00 | 7,439.00 | 76% | 20% | | |
| 11 | 41,276.00 | 10,173.00 | 6,830.00 | 67% | 17% | 3,195.00 | 31% |
| 12 | 58,703.00 | 16,674.00 | 19,150.00 | 115% | 33% | 7,739.00 | 46% |
| 13 | 59,514.00 | 17,200.00 | 17,952.00 | 104% | 30% | 9,913.00 | 58% |
| 14 | 70,910.00 | 15,535.00 | 21,248.00 | 137% | 30% | 11,888.00 | 77% |
| Sup. Totals | 474,316.00 | 125,044.00 | 124,368.00 | Av. 100% | Av. 26% | 46,956.00 | Av. 49% |
| 15 | 116,980.00 | 40,406.00 | 26,298.00 | 65% | 22% | 7,506.00 | 18% |
| 16 | 315,000.00 | 130,650.00 | 65,426.00 | 50% | 21% | 30,540.00 | 23% |
| Total | \$906,296.00 | \$296,100.00 | \$216,092.00 | 1574% Av. 73% | Av. 24% | \$ 85,002.00 | Av. 32% |
| GROUP No. 2 | | | | | | | |
| 17 | \$ 8,084.00 | \$ 1,282.00 | \$ 794.00 | 62% | 10% | | |
| 18 | 11,032.00 | 2,002.00 | 1,104.69 | 55% | 10% | | |
| 19 | 14,652.00 | 12,061.00 | 1,918.00 | 16% | 13% | \$ 900.00 | 8% |
| 20 | 27,833.00 | 11,322.00 | 3,001.74 | 27% | 11% | | |
| Total | \$967,897.00 | \$322,767.00 | \$222,910.43 | | | | |

NOTES

GROUP NO. 1—Consists of firms apparently engaged in the usual sheet metal and roofing business and have furnished enough individual items to arrive at a fair analysis.

GROUP NO. 2—Consists of firms apparently engaged in some activities not customary to the usual sheet metal and roofing business or have not furnished enough individual items to arrive at a fair analysis.

NOTES—SUB-TOTAL Averages were shown in Group No. 1 because firm No. 15 and No. 16 did almost half the total volume of business—to be exact 47% of the group total. Their overhead being exceptionally low made the group average the lowest in years.

The sub-total shows that without these 2 firms the group average would be 100% Overhead on Productive Payroll.

If the average Overhead of the 16 firms in Group No. 1 is based upon the number of firms—divide the total Overhead Column (1574%) by 16 = 98% which also might be considered a fairer way to compute the average.

Your "Service" Sales are Now Under OPA's Price Ceiling—

A first class cost system is therefore necessary

By Arthur Roberts

AS pointed out in AMERICAN ARTISAN, furnace and sheet metal repairs offer a market for the duration big enough to keep a goodly portion of the industry fairly busy, but bear in mind that service sales were put under a ceiling on July 1, after which date you may not charge more than March peak prices for the same or similar services sold. This restriction may put the warm air heating dealer or sheet metal contractor on a tough spot if he was costing service sales unprofitably in March—and from past experience in this field, we feel sure that many are in that category.

OPA regulations give only the rules for determining peak prices and procedural regulation, but leave it to the seller to cost service sales under ceilings as best he can. That is a large order for those who have been slackers on costing. A thorough understanding of costing service and repair sales and its equally thorough application is most important, so we offer this counsel to help you get over the top under price ceilings.

Three Ways to "Cost" Service

There are 3 general methods of costing service, to wit:

1—Cost-plus. The seller charges for time and materials plus a percentage for overhead expense and net profit. Under price ceilings, he must adhere to the peak March figures on labor and the plus-percentage used.

2—Contract price based on estimates: If you charged \$50 for a furnace repair job in March, that does not mean that all the same or similar furnace repair sales after July 1 must carry that \$50 peak. The same or similar services may vary in labor time, depending on conditions met. Obviously, if a seller must freeze his selling price to a March service job that took only three hours, he would be in a bad way, because the same or similar jobs after July 1 might require more labor hours and he would have to pay the difference out of pocket.

You are permitted to break down contract prices into labor, materials and overhead. You may charge the peak price *per hour* for labor used

in March when figuring the same or similar service after July 1, thus if a service job thereafter takes longer to do than in March, you will not lose on the labor cost. Material prices must remain the same and you can't pad your overhead percentage. Your suppliers cannot increase their prices over March peaks so your margin on materials should remain stationary for the duration. Unless wages, which have no ceilings yet, increase, you are safe here too and there are rumors that wages will be stabilized. If you keep your ratio of overhead to sales stationary, you won't lose on expense. If you can cut overhead, you may increase profit on service after July 1. If you costed sales accurately in March and made a profit, you should fare equally well under price regulation.

3—Contract price without estimate. Contractors offer such flat rates for servicing oil burners, coal stokers, air conditioning equipment and warm air heating plants, either by the season, year or call. Flat rates in the past have been built up by averaging the costs of 15 or more similar jobs, then using these costs as standards to arrive at the fixed contract prices. This saves estimating but losses have frequently been experienced because contractors did not change their rates when materials, labor or overhead increased. To assure success with flat rates, it is necessary to revise them continually in line with changes in over-all costs or competition.

What to Do When Competitors Set the Price

Sometimes warm air dealers have had to decrease flat rates even though materials or labor increased because competitors undersold them on similar services. As a result, sales were low, making the overhead percentage to sales abnormally high. A cut in the flat rate then stimulated volume, reduced overhead and increased profit, despite a bigger outlay for labor or materials.

From our observation, we believe that this method of pricing service sales will cause trouble for some warm air dealers and sheet metal contractors after July 1. Those who used the same flat rates while prices were rising, who sold such

service in March, are in a tight spot and must take corrective measures—or else. Many cases have been analyzed by us where contractors or dealers charging flat rates were earning more profit than those charging more. Why? Their over-all costs were more in line with prices on service.

You Must Adjust on Labor or Overhead

Because labor and materials can carry March selling peaks, and inasmuch as labor is not likely to go higher after July 1, and suppliers cannot increase their prices of materials over the March peaks, these elements of service cost should cause you no trouble, so long as you do not cut your prices under ceilings but your problem on all three methods of costing service is the old one of computing overhead on each job.

BPC (Before Price Ceilings), it was possible to apply correctives by increasing prices. Today, that is out. If your overhead percentage on estimates that resulted in peak-price March sales was lower than the actual overhead cost to you in dollars at that time, you will have trouble. But you can apply this formula that will guide you to profitable operation under price regulations.

To illustrate, let's take a warm air dealer, John Robinson, a pseudonym. His case is typical. He thought he was profiting at \$2.50 per service call on oil burners because he paid his journeyman \$50 weekly for 40 hours or \$1.25 per hour, and calls averaged 1 hour, hence, he assumed that his flat rate was ample because he marked up labor 100 per cent on cost or 50 per cent margin on the selling price. Parts used, of course, were charged for extra. If 40 per cent margin is a good spread on merchandise or material cost, reasoned Robinson, 50 per cent margin on labor should see me through safely on flat rate service calls, but it didn't always work out that way and it won't beget profits for other contractors or dealers either, in fact, 70 per cent of Robinson's service calls were handled at a loss even though he charged \$2.50 per call. Where was the joker? Let's break down his costs on these calls and see.

His repair service sales run 60 per cent of his total volume today, his overhead expense is \$6,000 yearly, hence, the pro-rata overhead chargeable to the service department is \$3,600 for 300 working days, or \$12 a day. His journeyman works 8 hours daily so each labor hour is burdened with \$1.50 overhead expense, which added to \$1.25 direct labor cost, totals \$2.75. Despite a wide margin on labor, Robinson was losing 25 cents on each labor hour used on flat rate service. That 30 per cent of these calls were profitable was largely due to the profit made on sales of parts and accessories. Where labor only was used, the calls were unprofitable. In many instances, we find that warm air dealers and contractors are losing money on labor and absorbing these losses through the profit made on parts and accessories, which is bad business. You should make a profit on labor and goods sold. Adding the over-all cost to materials only is seldom profitable.

From the foregoing, it is apparent that if your flat rates on service were figured unprofitably in the past, particularly during March, you will be in a bad way after July 1. This applies regardless of the method used in costing March peak sales on service or repairs. Some contractors are using March margins as a guide to future movement under price regulations, but your margin will tend to remain static because the cost of labor and materials should not change. You may have listed labor, materials and direct job expense accurately in March but cheated yourself on overhead rationing, and if such a service sale represented the peak price pattern to which you must cut all the same and similar service sales after July 1, you had better act quickly.

How to Get a Profit Under a Flat Rate Service

To thaw out safely, analyze costs in accordance with the labor hour formula given here, computing the number of labor hours your journeymen work and adding the pro-rata share of overhead. If you must freeze your service prices at loss figures, you have three ways out: 1—Cut your overhead expense under the March total, the dollar expense, we mean, not the percentage used in computing estimates; 2—cut your labor cost by better supervision or improved equipment, if you can get it; 3—increase service repair volume to reduce the ratio of overhead expense to sales.

According to Section 2 in the General Maximum Price Regulation, you cannot exceed the maximum prices charged for the same or similar commodities or services during March, so those in Robinson's position, cannot revise prices upward if analysis discloses that they are inadequate to take care of over-all costs. They must cut costs or increase sales with effective advertising and selling promotion and because the service and repair markets should expand under price ceilings and priorities, it should not be hard to increase such sales if efficient merchandising methods are utilized.

But, first, sellers must analyze their operating figures on service or repairs to know where they stand on this critical problem. Because repair sales should outrank sales of equipment for most contractors during the war, those who knowingly or unknowingly hog-tie themselves to a loss on service because of slap-happy costing or recording, will find the deficit increasing with the months. So, take the necessary steps to correct a dangerous situation now.

1941 Overhead Is No Good in 1942

An important consideration overlooked by many contractors and dealers giving service is that the overhead percentage used on current jobs is usually the percentage on sales for the previous year or in other ways based upon the previous year's ratios. In other words, such sellers were costing March jobs with an overhead percentage

(Continued on page 70)

New PRODUCTS

81—Red Lead Primer

National Lead Company, 111 Broadway, New York City, has just brought out Dutch Boy Semi Quick-Drying Red Lead for painting steel structures, fire escapes, iron fences, grilles, gratings and other metal objects or surfaces. Under normal conditions this paint dries tack-free in 4 to 6 hours.

Dutch Boy Semi Quick-Drying Red Lead weighs 21.6 lbs. per gallon. It is composed of 73 per cent (by weight) pigment (highly oxidized red lead) and 27 per cent (by weight) vehicle. It is put up in convenient sized packages and is primarily a priming coat paint for all exposed iron and steel surfaces.

82—Venturi-Flo

Barber-Colman Company, Rockford, Illinois, offers a thermostatically controlled Venturi-Flo—an overhead type air diffuser for year-around air conditioned spaces with high ceilings.



For cooling, a thermostat in the supply duct controls the blades in a multi-vane damper located on the underside of the unit. For cool air, the damper is closed, and all air is diffused in a conical pattern which covers the floor area the diffuser is designed to serve.

For ventilating, the damper assumes an intermediate position, forcing part of the air toward the floor.

For heating, the dampers are fully open and the main body of supply air is forced directly downward toward the floor.

Bulletin F-1497-2 is available.

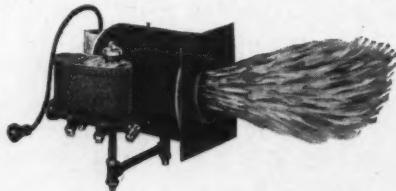
For your convenience a number has been assigned each item. Circle the items in which you are interested on the coupon on page 67 and mail to us.

● Indicates product not listed in 1941 Directory.

△ Indicates manufacturer not listed in 1941 Directory.

83—Oil Burner

Cole Hot Blast Mfg. Co., 3108 W. 51st St., Chicago, announces a horizontal, vaporizing pot-type oil burner, with no moving parts. This burner,

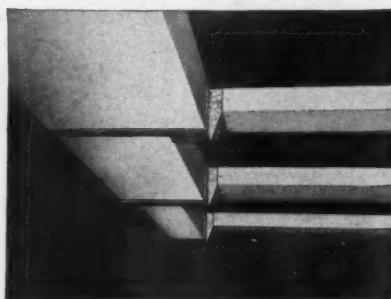


tested and approved by the National Board of Fire Underwriters' Laboratory for the use of No. 1 or 2 fuel oil or kerosene, operates with a constant running mechanical draft booster.

It is furnished in one size, adaptable for heating capacities of from 30,000 to 50,000 Btu. output.

84—Asbestos Bonded Duct

Sall Mountain Company, 176 West Adams Street, Chicago, is marketing an improved non-metallic, factory-fabricated and packaged Asbestos Bonded Duct, possessing remarkable strength and durability.



Sal-Mo Supply Duct is manufactured in a complete range of sizes to

cover domestic and industrial requirements, and requires ten percent or less vital metal for complete installation—standard fittings out of established stocks, or made from scrap metal about the shop. No new tools, patterns or equipment are needed.

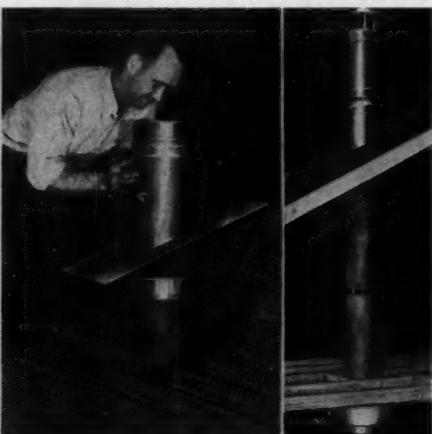
Sal-Mo Supply Duct is classified as "fire-retardant" under specifications SS-A-118 covering acoustical units, prefabricated.

85—Improved Vitroliner

Condensation Engineering Corporation, 2515 Archer Avenue, Chicago, offers a labor saving improvement in Vitroliner metal chimneys for defense houses.

The new feature, the Howle chimney support, is a tapered metal cylinder which in a round opening in the ceiling extends 9 in. below the ceiling line and is nailed securely to the ceiling joists on four sides. The weight of the Vitroliner chimney—70 pounds—is held in place by this support, except the top of the chimney, which is nailed and supported on the roof top. Clearance is allowed for expansion and contraction in a patented feature. Prefabricated Fyrex insulation covers the Vitroliner chimney from a point above the roof line to the bottom of the Howle chimney support, and is fastened together with metal bands. This feature makes the chimney foolproof to meet the requirements of Division D-23B of the Defense Housing Specifications, National Housing Agency, The Federal Public Housing Authority.

By supporting the Vitroliner chimney from the ceiling line, all floor space is clear, and the heating unit can be placed wherever desired. Vitroliner chimneys have sufficient draft so that coal, oil or gas can be used successfully.



Figurin' the Angles

Clever furnace dealers are finding
new business in new places



These New Dealer Helps can Help to Keep You Busy, too

THE WAR'S UNCOVERED a whale of a lot of sleeping business.

In peacetime, most people didn't think it was important to keep furnaces in tip-top shape. Today, these same people are as attentive to their heating plants as they are to their auto tires.

They are *anxious* to keep their furnaces clean and in perfect repair. They are *anxious* to keep filters in warm-air furnaces at peak efficiency.

Replacing those filters can net you up

to \$2 or \$3 a year on every warm-air furnace you service. And making these replacements gives you a perfect opportunity to check a heating plant and call the owner's attention to necessary maintenance work.

Here's How Dust-Stop Helps You—*
We'll furnish you with (1) radio scripts,
(2) newspaper mats, (3) mailing pieces,
(4) follow-up postcards, (5) card file for
names and call-back dates, (6) reminder
stickers for furnaces—and
every one of them has your
name and address imprinted
FREE!

But that's not all . . .

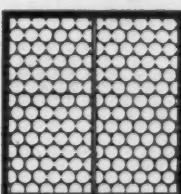
In addition you have the
backing of a national adver-

tising campaign which reaches the millions of readers of The Saturday Evening Post, Life, Better Homes and Gardens, and American Home! How can you miss?

Profits?

You can work on from 200 to 300 furnaces a year at least. Add up your service charges and profits from repair work and filter sales—and, brother, that ain't sneezing money!

Start after this extra business right now—*today*. Get in touch with your distributor and ask him to show you Dust-Stop's BIG 1942 Sales Plan, "Pulling Profits Out Of The Air." Owens-Corning Fiberglas Corporation, Toledo, Ohio. In Canada, Fiberglas Canada, Ltd., Oshawa, Ontario.

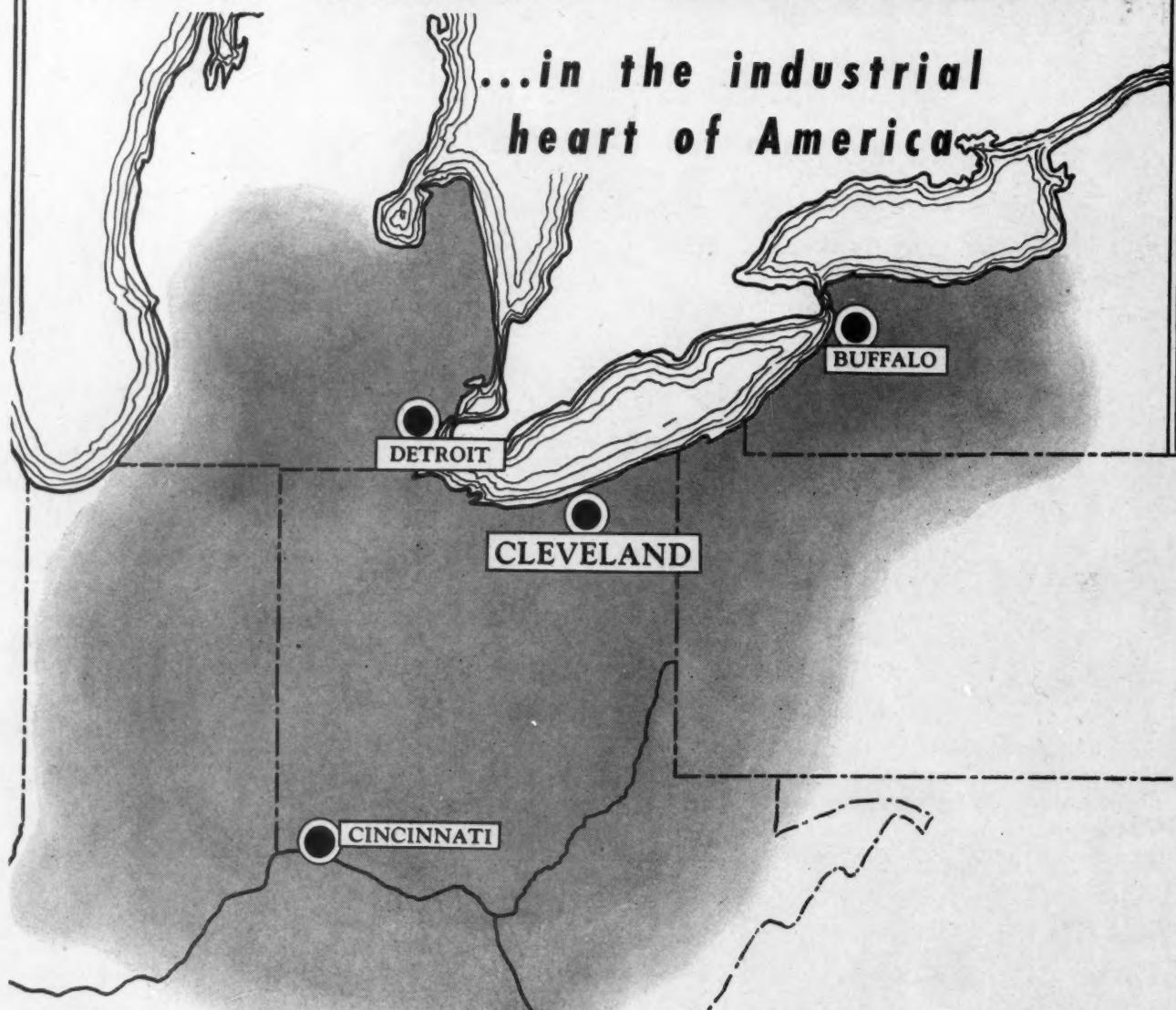


DUSTSTOP*
FIBERGLAS* AIR FILTERS

* T.M. Reg. U.S. Pat. Off.

FOUR OSBORN WAREHOUSES

*...in the industrial
heart of America*



Achieving victory in our war effort is the biggest and perhaps the hardest job we Americans have ever faced. It's a job in which there is a part for everyone. For millions, this means serving with the armed forces while more millions will do their share by working long, hard hours turning out the equipment and armament so urgently needed by our men on the fighting fronts.

We, at OSBORN'S, have our job to do, too. Because the territories served by our four warehouses are right at the heart of our nation's industrial section, we are supplying an ever-increasing quantity of materials to plants doing war work. And it's noteworthy that more and more of these are sheet metal

shops whose owners—at the risk of neglecting their regular trade—are loyal first to their country to which we all owe so much.

For the duration, our nation's war needs will and must have first call on American industrial facilities and materials. This is but one of the ways in which we will all do our bit to keep production lines moving ... to help attain victory and bring peace to the world.

THE J. M. & L. A.
OSBORN CO.
CLEVELAND, OHIO
BUFFALO • CINCINNATI • DETROIT

Manufacturers—Distributors of Metals and Metal Products

A DEPENDABLE SOURCE OF SUPPLY FOR 83 YEARS

TURN IN ALL YOUR *SCRAP*

It'll Shorten the War!



LET'S FACE THESE FACTS:

Waste materials—scrap metals, rubber and all the rest—are the life-blood of America's war industry, perhaps of *your own* business. Before we can win, *every pound* of these idle materials must be converted into ships, trucks, tanks and guns. About one-half ton of steel scrap is needed for every ton of new steel produced.

How You Can Help: If you are a contractor, search your shop for old furnace grates and castings, old heating stoves, pipe—even worn-out gutters and downspouts. When you have a large-enough quantity of worn-out equipment and waste metal, sepa-

rate the scrap and call the scrap dealer. (Steel scrap collected will be purchased by the steel industry at the government-controlled price.)

Also urge your employees and friends to turn over to the local salvage committee, charity, or junk dealer all their old rubber articles, rags, and discarded metal household equipment.

A Job for Everyone: Collecting scrap materials is a job no one group can do alone. Every pound turned in will help shorten the war. The reward is great: American lives saved and a quicker return to your peacetime work. The American Rolling Mill Company, 2521 Curtis Street, Middletown, Ohio.



This advertisement is in support of the Salvage Program of the Bureau of Industrial Conservation, the War Production Board.

New Products

For your convenience in obtaining information regarding these items, use coupon on page 67.

86—Tinless Solder Samples

The L. B. Allen Co., Inc., 6719 Bryn Mawr Ave., Chicago, is offering industry samples of Allen Siloy solder (containing practically no tin), together with special Allen flux which aids in making it an efficient product for most common metals and jobs.

Generous samples of the solder and flux are offered, but details of soldering problems are invited in order that available information on procedures and methods may be sent.

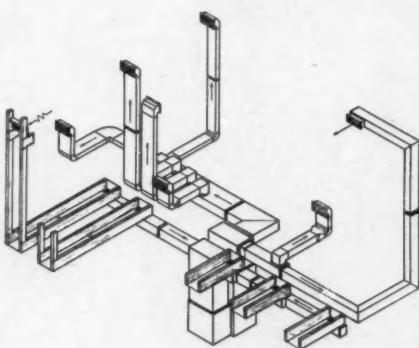
87—Formdux

Airtemp Division, Chrysler Corporation, Dayton, Ohio, has announced Formdux—a ductwork which uses only 20 percent of the metal usually required in ducts for forced air furnaces. Airtemp is already in volume production and will supply heating contractors through jobbers or direct until jobbers are supplied.

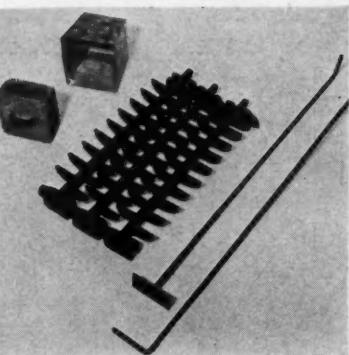
Formdux sheets are shipped flat. They have high tensile strength and are completely fireproof, thus may

even be used in forming plenum chambers. The sheets have a high insulating quality which conserves fuel and a low resistance to the flow of air. They are strong and impervious to moisture.

Formdux is economical to install and can be put together with airtight



connections by sheet metal workers. Expansion and contraction noises are lacking. Formdux is approved for use in homes financed by FHA.



88—Convert-O-Grate

Anchor Post Fence Company, Fluid Heat Div., Eastern Ave. & Kane Street, Baltimore, is placing on the market a series of grate bars mounted on bearing blocks across the top of the combustion chamber. Preliminary installation of bearing blocks and ash removal port requires about two hours time. The oil burner remains in place and its fan provides the air for the proper combustion of the anthracite coal (pea size).

The automatic features of oil heating plans are retained. Firing and ash removal are manual tasks.

The change from oil to coal and back to oil, after the preliminary installation of bearing blocks and ash removal port, requires only a few minutes.

You've Heard Their Voices for Years! Now we'd like for you to meet the owners!



Main Office phone 4-4111

On your left, ladies and gentlemen, is Miss Henrietta Frahm, the smiling, soft-voiced lady who has taken your orders for Handy Pipe and other merchandise for 35 years.

For most of this time she has been Mr. George Harms' "right-hand man"—a very capable and efficient secretary—and her knowledge of furnace pipe and fittings is appreciated by many heating contractors in all parts of the country.

On your right, meet "Herb" Daniels—another "Voice of Handy Pipe." Herb is at the pipe-shop—been with us for 17 years—has the job of keeping records straight—and of keeping a smile in our "Public Relations." He, too, has helped many customers in ordering proper sizes and styles of fittings.



Pipe Shop phone 3-3251

Now that you've met them, call up often—there are still some things we can fill your orders for! Over and above our Government occupation, we are still able to supply materials for repairs and maintenance. Our large warehouse capacity enables us to supply many things to those who can qualify—so ASK US before concluding we CAN'T help you.

F. MEYER & BRO. CO., PEORIA, ILLINOIS



New Target for Industry:

More Dollars Per Man Per Month in the
PAY-ROLL WAR SAVINGS PLAN



TO WIN THIS WAR, more and more billions are needed and needed fast—AT LEAST A BILLION DOLLARS A MONTH IN WAR BOND SALES ALONE!

This means a minimum of 10 percent of the gross pay roll invested in War Bonds in every plant, office, firm, and factory in the land.

Best and quickest way to raise this money—and at the same time to "brake" inflation—is by stepping up the Pay-Roll War Savings Plan, having every company offer every worker the chance to buy MORE BONDS.

Truly, in this War of Survival, VICTORY BEGINS AT THE PAY WINDOW.

If your firm has already installed the

Pay-Roll War Savings Plan, now is the time—

1. To secure wider employee participation.
2. To encourage employees to increase the amount of their allotments for Bonds, to an average of at least 10 percent of earnings—because "token" payments will not win this war any more than "token" resistance will keep the enemy from our shores, our homes.

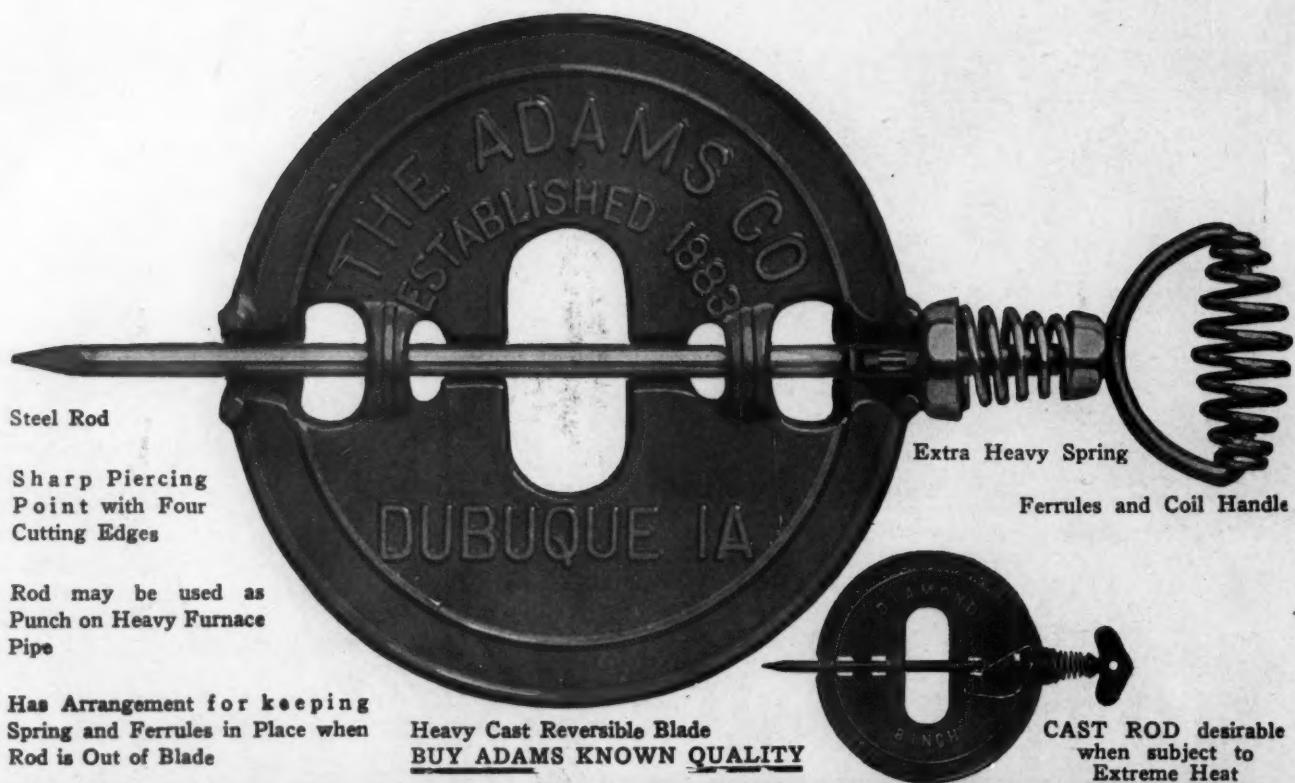
If your firm has not already installed the Pay-Roll War Savings Plan, now is the time to do so. For full details, plus samples of result-getting literature and promotional helps, write, wire, or phone: War Savings Staff, Section E, Treasury Department, 709 Twelfth Street NW, Washington, D. C.



U. S. War Savings Bonds

This space is a contribution to America's all-out war program by

AMERICAN ARTISAN



DIAMOND SMOKE PIPE DAMPER

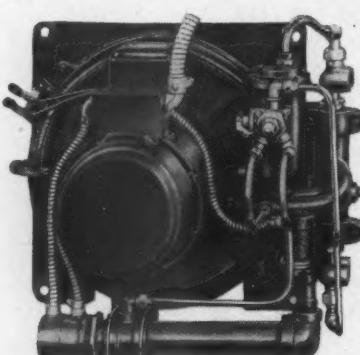
Manufactured by THE ADAMS COMPANY Dubuque, Iowa, U.S.A.

ESTABLISHED 1883

You have often helped US...



Now, perhaps we can help YOU!



Still available...
the famous

Johnson AVH

We can supply this fine
Rotary Burner in sizes ideally
suited to military and
war industry installations.

WE owe a lot to the loyalty of architects, engineers, contractors and service men who have been emissaries of good-will for Johnson Oil Burners.

Now...when the problem of getting needed equipment is so great...maybe we can return the favor. There are many Johnson Burners still available on A-10 or better Priorities. Not all sizes or types, of course...but more than perhaps you know.

A WIRE OR LETTER describing what you need will get a quick "yes" or "no" from us...plus any constructive suggestions we can offer. Believe us...we'll try, *really* try...to help you. Give us the chance if you have a heating "headache".

FREE
COMPLETE
SPECIFICATIONS

S. T. JOHNSON CO.

940 Arlington Avenue • Oakland, Calif.
401 N. Broad Street • Philadelphia, Pa.

New Literature

For your convenience in obtaining copies of new Literature use the coupon on this page.

286—Uni-Flo Grille—Venturi-Flo Diffuser

Barber-Colman Company, Rockford, Illinois, is distributing Catalog F-1415-4, illustrating and describing their Uni-Flo grille and Venturi-Flo overhead diffuser.

A supplement to this catalog includes the necessary engineering data for the determination of sizes and types.

287—Koolstack with Automatic Damper

Leader Iron Works, Inc., Decatur, Illinois, is distributing circulars explaining the Koolstack furnace and the patented automatic damper. Their letter of July 15 to jobbers of warm air furnaces advises that some replacements (L-79 P-84) can be made now, and that they have a limited stock on hand.

288—Air Health

Monmouth Products Company, 1929 E. 61st St., Cleveland, is distributing an envelope stuffer, with space for dealer imprint entitled "The Air in Your Home in Winter."

This booklet explains why the air in homes in winter contains insufficient water vapor for good health—causes winter colds, makes them more severe, retards recovery and fosters serious consequences.

289—Welding Electrode Conservation

Air Reduction Sales Co., 60 East 42nd Street, New York City, has just issued a new 14-page "fight waste" bulletin—"Make 3 do the work of 4." The booklet, which consists of a series of shop posters, is designed to help arc welding operators do more useful work with every electrode. Each poster—and there are six in all—illustrates a common wasteful practice, then shows the corresponding good practice and points out the ease and simplicity of doing the job the right way. Posters are bound securely into the booklet—yet are perforated and can be easily detached and tacked on shop bulletin boards.

290—Metal Working Tools and Machinery

Joseph T. Ryerson & Son, Inc., 2558 West 16th St., Chicago, is distributing a pocket-size machinery and tool catalog for the metal working industry.

Containing 96 pages, the Ryerson Machinery and Tool Catalog No. 42 lists cutting, bending, grinding and punching machines for plate fabricating structural and general maintenance work, sheet metal and machine shops.

Latest type metal working tools and machinery, power or manually driven, comprises a wide selection from which to choose.

Specifications, illustrations, and performance data for all equipment give concise, helpful information.

FOR YOUR CONVENIENCE

American Artisan, 6 N. Michigan Ave.
Chicago, Ill.

Please ask the manufacturer to send me more information about the equipment mentioned under the following reference numbers in "New Products" and "New Literature." (Circle numbers in which you are interested):

| | | | | | | | |
|-----|-----|-----|-----|-----|----|----|----|
| 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 |
| 286 | 287 | 288 | 289 | 290 | | | |

Name _____

Company _____

Address _____

Are you Manufacturer—Jobber—Dealer—

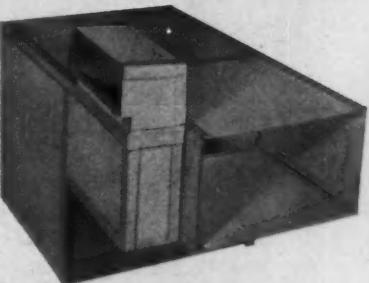
A·R·A SHEETS

Are Now Available for
DUCT WORK
FITTINGS • CASINGS
AND "PANNING" JOISTS



A.R.A. Sheets are tough yet flexible (Mullen tested over 200 lbs. per sq. in.) . . . and being fire-proofed and water-proofed their uses are many. They can be fabricated into fittings for warm air and air conditioning systems as well as casings of various kinds.

A.R.A. Sheets are light in weight, will not dry out, crack, crumble or chip, have a high insulating value (K.45 B.t.u.) . . . and good sound deadening properties. They are easy to handle, will bend without breaking and can be rolled, punched, scored and die cut, still retaining their rigidity and strength.



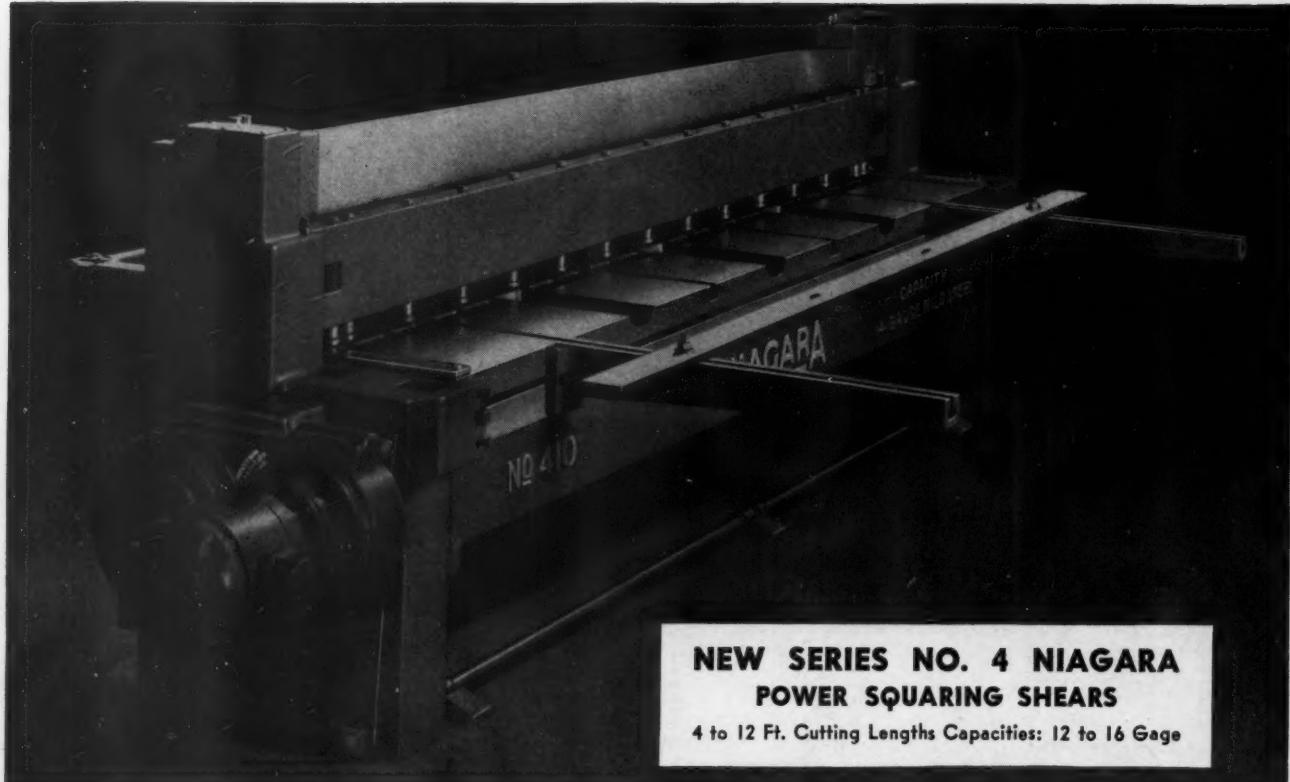
Also used for "Panning" joists for cold air returns.



A.R.A. Sheets are shipped in cartons. Each carton contains 20 sheets 33"x48" or 40 sheets of 16½"x48". A carton weighs about 100 lbs.

Write for Samples and Information

GRANT WILSON, INC. • CHICAGO
4101 W. TAYLOR STREET



NEW SERIES NO. 4 NIAGARA POWER SQUARING SHEARS

4 to 12 Ft. Cutting Lengths Capacities: 12 to 16 Gage

These new Shears cut straight to within a few thousandths of an inch. High production results from their speed of 75 strokes per minute, instant acting sleeve clutch and convenient operation.

Drive is enclosed in oil tight case. Motor is direct con-

nected. Standard equipment includes ball-bearing, self-measuring, parallel back gage, front and side gages, and four edge, solid tool steel knives. Niagara Machine & Tool Works, Buffalo, N. Y., Branches: New York, Cleveland, Detroit.

WAGNER MOTORS give MAXIMUM Efficiency ON HEATING, VENTILATING and AIR CONDITIONING EQUIPMENT THAT GOES INTO War Service!

Because Wagner motors have proved their reliability and efficiency in pre-war days on all kinds of motor driven equipment, thousands of them have already gone into war service. Today you will find Wagner motors driving heating, ventilating and air conditioning equipment in war industries, army cantonments, navy yards, air fields and on ships — delivering the same dependable service that has established Wagner's outstanding reputation for high-quality motors.

Wagner's plant is working day and night, turning out more motors now than ever before, and are supplying these dependable motors wherever they are needed to help in our "all-out" war effort.

If the equipment you manufacture or install is motor driven and essential to war production or to the armed forces — consult Wagner. Twenty-five branch offices, located in principal cities and manned by trained field engineers, are at your service.

Remember —

SERVICE FOR THE DURATION IS OF PARAMOUNT IMPORTANCE

In times like these, when many manufacturers of electrically driven equipment have converted their plants to the manufacture of victory material, it is good to know that the motors driving their equipment in the field will not want for service. Wagner's 25 sales and service branches are on the job in all parts of the country to help you keep your products in continuous service, no matter where they are.

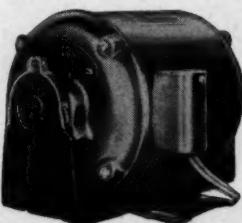
M42-23



Type RP, Squirrel-Cage (1/6 to 400-hp.) — of simple construction, easily installed, and exceptionally sturdy and dependable.



Type M, Shaded-Pole Fan Motors (1/125 to 1/30-hp.) — ideally suited for fan and blower drives where the fans or blowers are mounted directly on the motor shaft.



Type RA, Re-pulsion-Start-Induction (1/8 to 15-hp.) — the ideal motor for heavy duty applications such as compressors, pumps, stokers, etc.



Wagner Electric Corporation
6400 Plymouth Avenue, Saint Louis, Mo., U.S.A.

MOTORS • TRANSFORMERS • FANS • BRAKES

With the Manufacturers . . .

Spray-Painting School

DeVilbiss Company, 300 Phillips Ave., Toledo, Ohio, announces an enlarged and intensified training schedule in The DeVilbiss School of spray-painting.

Two-week training courses will be held in Toledo on September 14-28, October 5-19, November 2-16 and November 30-December 14. Similar courses were held July 6-20 and August 10-24.

The DeVilbiss School is now in its fifteenth year. It specializes in spray-painting and is open without charge to all who use DeVilbiss spray equipment. The training course covers all phases of spray-painting, with special application to each attendant's particular requirements. Classroom instruction and shop work are conducted by a full-time supervisor and a staff of instructors who are spray-painting specialists.

The C. A. Olsen Manufacturing Company of Elyria, Ohio, manufacturers of Luxaire Warm Air Heating and Air Conditioning Equipment, announce the addition to their personnel of **James Crombie**.

Jim, as he is known among the heating trade, has long been associated in the heating and air conditioning field, working out of Cincinnati, Ohio.

Jim, along with the Mrs. and all the little Crombies, has taken up permanent residence in Elyria, Ohio.



Fuel Conservation Campaign

The National Mineral Wool Association, 1270 Sixth Avenue, New York City, is distributing an illustration, of interest in connection with the fuel conservation campaign, entitled "If You Can't Go South Next Winter—Send Your House."

The suggestion is that if a winter vacation is out for the duration, you can still, in effect, winter in a warmer climate; that is, your furnace can take the vacation. Assuming a conservative 33½ percent reduction in heating load with full-thick mineral wool insulation, the seasonal savings will have the effect of transferring a house from Milwaukee to St. Louis, from Portland (Oregon) to Atlanta (Georgia), or from New York to Norfolk (Virginia). To use this analogy for any given location, look up the number of Degree Days, reduce by one-third, and find a town farther South whose climate corresponds to the reduced figure.

Reining Represents Research Products

Lou Reining, Chicago representative for Automatic Humidifier Co. of Cedar Falls, Iowa, Cook Electric Company, of Chicago, and Brundage Company of Kalamazoo, Michigan, is also representing Research Products Corporation of Madison, Wisconsin.

Research Products offers RiP-Clean air filters—clogged fibre sheets are simply ripped off, while wire grids are used over and over.

York Pittsburgh Branch Moves

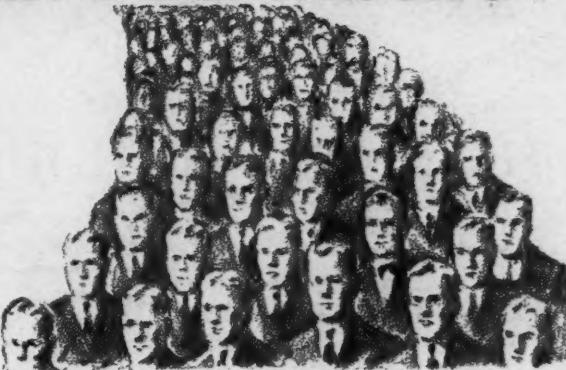
The Pittsburgh branch of the York Ice Machinery Corporation is now in the Hostetter Building, 7 Ferry Street, Pittsburgh, Penna. The new phone number—Grant 1555.

Defense Industries Training and Research

Hobart Brothers Co., Troy, Ohio, editorially and pictorially explains the products, manufacturing and engineering facilities, and wartime activities of the companies making up the Hobart group of factories in a 20-page booklet. Many application pictures show possible uses for Hobart products in war and peacetime activities.

4,031*

SHEET METAL MEN CAN'T BE WRONG!



There's no better endorsement in the world than an actual purchase order, backed up by hard cash! And that's just the way 4,031* Sheet Metal Men have "endorsed" the Lockformer. That means that approximately

. . . ONE OUT OF EVERY SEVEN SHOPS NOW HAS A LOCKFORMER!

Considering that the first Lockformer ever built was announced less than four years ago, this sensational acceptance by the Industry as a whole speaks for itself — attests to the speed with which owner enthusiasm travels.



*Actual number of Lockformers delivered to date.

There is a wide range of Lockformer models and attachments for making Pittsburgh Locks, Right Angle Flanges, Double Seam Locks, Standing Seam Locks and Drive Cleats. May we send you a Catalog?

ONE MAN AND A LOCKFORMER CAN MAKE MORE PITTSBURGH LOCKS THAN SIXTEEN MEN WORKING AT EIGHT BRAKES.

The LOCKFORMER Co.
4617 ARTHINGTON STREET, CHICAGO, ILLINOIS



FIGURE YOUR AIR FILTER COST *by the year* ...not by the unit

Years of long life without need of replacements . . . that's the secret of the economy of AIR-MAZE permanent washable air filters. Even though they cost a bit more *per unit* than conventional "throwaway" filter panels the difference in cost is usually made up in a year or less.

After that they still have a life expectancy of 10 to 15 years . . . all pure velvet on the cost side, except for the minor expense of occasional cleaning. For AIR-MAZE filter panels can be cleaned *again and again* to make them like new with all their original performance characteristics.

Add to this the advantage of their superior efficiency . . . *better than 99% by actual test* (practical dust) . . . and you have the important reason for the growing popularity of AIR-MAZE panels for every air filter need. *Approved by the Underwriters' Laboratories.*

Write for interesting data on the economy of AIR-MAZE air filter panels.



AIR-MAZE CORPORATION
5130 HARVARD AVE. CLEVELAND, OHIO



Service Sales Under Price Ceiling

(Continued from page 59)

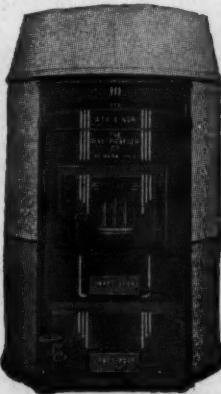
ratio for 1941. If expenses had remained stationary from January 1941 to March 1942, no harm is done but everyone knows that expenses during this period were on the upgrade and that some contractors expanded, which would tend to make the March percentage too low. The seller who has trouble earning a profit under price ceilings on service will find it largely due to the use of an overhead percentage that is too low because it is too old. If he used such a percentage on March repair jobs, he should apply correctives.

On sales of complete installations where the ratio of equipment is more than that of labor, the substantial margin made on the equipment may obscure the labor-hour loss because the completed jobs will net a profit, but repairs and service often carry a small or negligible ratio of equipment or materials and a heavier ratio of labor hours, which may result in loss on completed work if the overhead percentage is figured too low for the same reason that Robinson lost money. Heretofore, warm air dealers and sheet metal contractors could make good for such losses either by raising prices or closing contracts for installations carrying big equipment ratios but prices can't be increased over March peaks on service after July 1 and equipment sales are curtailed because of restrictions.

50 YEARS OF LEADERSHIP *The Time-Tested* ATH - A - NOR

Furnaces, like any other piece of merchandise, are only as good as the people who make them. The May-Fiebeger Company has been making the ATH-A-NOR Furnace illustrated for over fifty years, and the fact that it will perform with unusual efficiency and economy is backed up by hundreds of satisfactory installations.

If you've been looking for a fast-moving, top performing gravity furnace to round out your line, investigate the ATH-A-NOR now! A postcard request will bring literature.



- QUALITY
- ECONOMY
- EFFICIENCY

. . . write today
for further information!

MANUFACTURERS OF QUALITY HEATING EQUIPMENT FOR OVER 50 YEARS

MAY-FIEBEGER COMPANY
NEWARK OHIO

Pennsylvania Convention

(Continued from page 57)

Lefferdink explained that in the beginning of the Priorities system, low priorities were sufficiently good to get material, but as the demand for more and more material arose all over the country, higher and higher ratings were assigned to the same class of business which formerly took low ratings and eventually all ratings were high and even high ratings proved no good. An indication of this is the fact that the A-1-a rating which used to be high has now been surpassed by AA ratings and AAA ratings.

War Production Board estimates that there are from 15,000 to 16,000 prime contractors and from 35,000 to 40,000 subcontractors now engaged in war work. Even this tremendous number of firms doing war work leaves an additional 130,000 manufacturers or fabricators completely out of the war picture. However, everyone in Washington, said the speaker, appreciates that these 130,000 manufacturers must be kept in business because it is they who will pay a large portion of the taxes to finance this war. Washington is afraid that by next year many of these contractors not engaged in war work will be no longer able to get essential materials no matter what the excuse may be. To remedy this situation, we are now inaugurating an allocation program (See the July AMERICAN ARTISAN) and Washington hopes that this allocation may make materials more readily available than the straight priority systems.

The speaker threw the session open to questions and answers. As to repair of gutters and downspouts, Mr. Lefferdink said that using the repair order P-84 automatically signing A-10 as a contractor, a contractor may install new metal gutters and downspouts to replace wornout gutters and downspouts. If you have gutters and downspouts in stock and are not concerned about replacing them, then you can do repair work without any order or priority or any other red tape. Amended Order L-79 permits the use of metal as repair material. For instance, an additional cold air return made of metal can be installed if the contractor is not concerned about replacing his used material. Additional cold air returns are a border line case and where the contractor is in doubt he should consult his local War Production Board. If you wish to add a new warm air or cold air run under P-84, you may be able to prove an absolute need, but on the other hand, you may be ruled against, therefore a direct appeal is always the best procedure.

PD-200 order permits use of tin in stock for roofing repair work, but replacement of this used tin will probably be impossible. Any orders which can be obtained by use of regulation P-110 which permits the remodeling of existing structures up to \$800 is strongly advocated by Washington and it is hoped that P-110 will provide additional quarters. This being the case, any order which can be pushed through under P-110 will probably receive more consideration than by any other source.

Iron and Steel Order M-126

H. M. Evans of the Iron & Steel Branch of War Production Board, discussed Metal Order M-126, which is the basic control over all metal. Mr. Evans announced that a new order—PR-13—was being revised

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JOHN ZINK FLOOR FURNACES come with automatic or manual control, in 4 sizes with the following input ratings:

25,000 B.T.U.
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Play Safe by specifying John Zink FLOOR FURNACES

Large, improved combustion chamber . . . one-port, non-plugging gas burner . . . easily removable airhood . . . comes in 4 sizes with automatic or manual control.

- RAPID air circulation
- QUIET operation
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Write for further details today!

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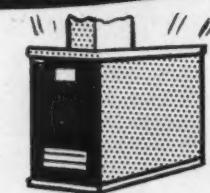
HERE'S A NEW WAY TO SELL FILTERS



... don't just sell a single change in air filters . . . sell a box of filters. RESEARCH makes it easy with a complete selling plan.

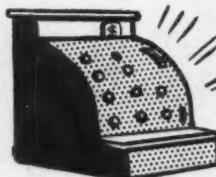
IT PAYS TO

SELL-A-BOX OF AIR FILTERS



SELL 6 FILTERS, an entire box, enough for at least a year's service (filters should be changed twice a year, at least)

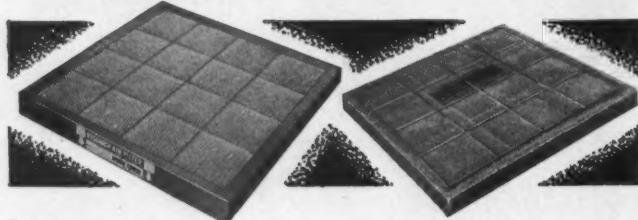
IMPROVES HEATING . . . because your customers will change their filters more often . . . and thus eliminate troubles.



SAVES TIRES . . . only one delivery trip instead of two or three because you Sell-A-Box.

INCREASES PROFITS . . . because you double and triple air filter profits with a single sale.

RESEARCH AIR FILTERS



"100 SERIES" disposable filter . . . bound by fiber frame . . . high cleaning efficiency.

"200 SERIES" exclusive re-usable filter, uses no critical materials

Write for full details.

**RESEARCH PRODUCTS CORP.,
MADISON, WIS.**

and is intended to cover material in inventory. In other words, PR-13 will tell you how much you will stock of all critical materials. Under PR-13, Washington can requisition any needed materials.

Mr. Evans said War Production Board firmly believes that manufacturers just as much as the armed forces, will help to win this war. It is every citizen's duty to get along with just as little as possible so that the army and the navy can have the best of everything and in sufficient quantities. The first programs of iron and steel and critical metals allocation by priorities was easily met and without too much conflict, but as production stepped up, scarcities increased. Whereas in October, 1941, Washington still believed that we could impose our war needs on our normal needs, since October, 1941, it has become very evident that War needs are greater than actual production. For example, 90 millions of tons of steel is our potential production, yet war products alone require 105 million tons.

The analysis by Iron & Steel Branch indicates that the army, navy, maritime commission, lend-lease, are now using approximately 66 percent of the total critical metals production. Farm machinery and similar essential uses are now using 14 percent of the total production; new plants to increase our aluminum or steel or iron will require approximately 18 percent of our total production or added up, 98 percent of our total production is required by these essential uses. In addition to this, approximately 19 percent of our total production was requisitioned under essential orders carrying a priority rating better than A-10. This makes a total of 118 percent requirement of 100 percent total production.

Mr. Evans announced that whereas the first unessential metal product list issued showed approximately 400 metal items to be discontinued, Iron and Steel Branch believe that before the end of the war, more than 1,000 critical metal items will no longer be manufactured.

The encouraging part of Mr. Evans' speech had to do with the new appeals unit which is being set up to enable anyone who is put out of business or seriously handicapped by the M-126 order to make a direct appeal to Washington for assistance. In order to file an appeal, Mr. Evans explained that the applicant should go to the nearest War Production Board office and obtain an appeal form (PD-500) which should be filled in and sent to Thomas Bourne, Administrator, Appeal Section, War Production Board, Temporary Building E, Fourth Wing, Washington, D. C. Mr. Evans pointed out that hardship alone is not the basis for an appeal. There must be definite interference with war production before any serious consideration of the appeal. Therefore, the appeal process, while encouraging, is not intended as an open gate to any and all types of connivance to obtain materials.

Inflation

Last year, at the Greensburg convention, Dr. R. E. Slessinger, Professor of Economics, University of Pittsburgh, presented a very interesting discussion, and so the convention asked Dr. Slessinger to return this year and speak on "Inflation in the Present Economic System." Dr. Slessinger brought Herbert S. Parnes, also a professor of economics, and between them the two professors presented a fairly understandable resume of the present situation so far as

FOR CRACKED FIREPOTS

Fireline repairs cracked, broken firepots by providing a one-piece refractory lining. After this lining has been installed, the furnace works better than before, and you make a good profit on the job.

Your helper can install Fireline in a few hours without taking down the furnace.



FOR GOOD FIREPOTS

All firepots should be protected with a Fireline lining which not only prevents them from cracking or burning out but pays its price many times over in the fuel it saves.

Fireline is an item you can get now and sell now.

FIREBRICK IN PUTTY FORM

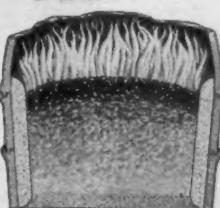


You merely tamp it into place around the firepot and smooth it off with a trowel. If the castings are cracked, it avoids buying new ones . . . If they are good, it protects against fire damage.



SAVES FUEL!

A Fireline refractory lining in the firepot radiates the heat across the entire fuel bed. The result is complete combustion of all the fuel; no unburned coal in the ashes. Eliminates smoke, soot, and dirt.



FIRELINE STOVE & FURNACE LINING CO.
1816 Kingsbury St. Chicago, Illinois

DIRECT-FIRED HIGH-CAPACITY HEATERS

Send us your requirements for large space heating.



WEIR Heavy Duty coal-burning and oil-burning units range in size from 300,000 to 1,200,000 Btu per hour.

THE MEYER FURNACE CO.
Peoria, Illinois

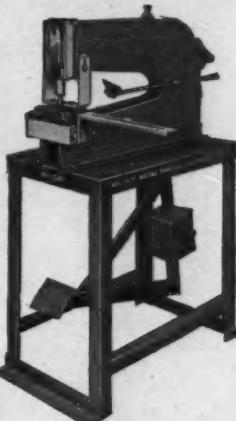
Many Army and Industrial Projects are using WEIR-MEYER Equipment



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METAL-WORKING MACHINERY and HAND TOOLS
for LONG LIFE and ACCURACY

TOGGLE-ACTION FOOT PRESSES 7" 10" 18" 24" THROAT DEPTH

A powerful linkage MULTIPLIES foot power for fast, EASY punching and forming operations. Capacity 2" hole in 16ga. iron, 100 holes per minute or better. A light, sturdy machine for jobbing or production work.

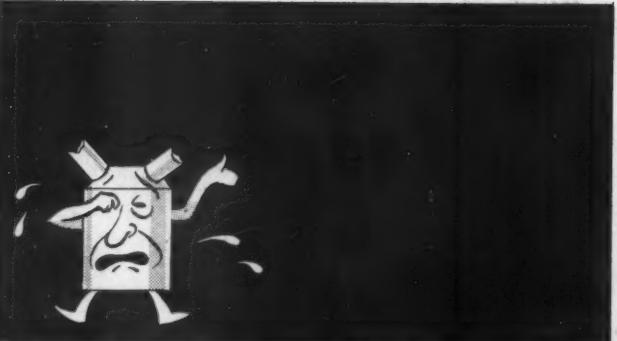


NO. 20 BALL BEARING PUNCH

Powerful action gives tremendous punching power in a light-weight tool. Equally useful as a portable tool, or with bench base shown in a fixed location. Weight only 20 lbs., yet has capacity of $\frac{1}{2}$ " hole in $\frac{1}{2}$ " iron.



WHITNEY METAL TOOL COMPANY
91 FORBES STREET • ROCKFORD, ILLINOIS



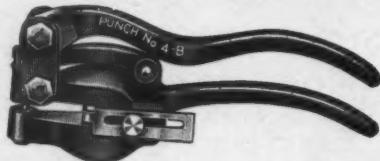
DON'T LET YOUR FURNACES BE BLACKED OUT BY POOR REPAIRS

Many a furnace that might have been replaced is now going to be made to "do" for the duration. Repair business will mount and you will want to protect yourself and your customers by using a furnace cement that is right. Leading furnace manufacturers have been using Tharco Asbestos Furnace Cement for years. So have furnace repair men who take pride in their work and who know it's good economy to do a repair job so it stays done. Finest materials, an exclusive method and formula and painstaking manufacture insure Tharco's consistent high quality and workability. If you haven't tried Tharco—try it NOW!

Ask for a free copy of our valuable folder:
"The Proper Use and Care of Furnace Cement"



A REAL *Time Saver*



The No. 4B PUNCH
by *Whitney*

This punch is accepted by leading contractors and dealers as a real time-saver in the shop and on the job. Men who use it every day know it can't be beat for clean, fast punching. Has a capacity of $\frac{1}{4}$ " through 16 ga., weight 3 pounds, $8\frac{1}{2}$ " in length, depth of throat, 2". Complete tool includes three punches and three dies of specified sizes with die adjusting key.



prospective inflation is concerned. Said Dr. Slessinger: Most people think of inflation as a bushel of paper money for a package of cigarettes. Quite the contrary, the inflation which is now rearing its head in America is a price inflation on goods. People have money, but they can not find goods to spend their money on. To control this desire to spend money, we are trying to curb inflation by applying a price ceiling, by asking citizens to buy bonds and so forth. Despite all our efforts, there is at present more money in savings accounts, in banks, even under the mattress, than at any time in our history, and eventually this increased income in the hands of people who can not spend this income will not make for prosperity, but will lead to inflation.

The only alternative is forced savings or greatly increased taxation which takes the money away from the wage earner. Where our fight against inflation falls short, in the opinion of the professors, is that income should be ceilinged, as well as prices. And labor wage rates should also be ceilinged so that how much you make, how long you work, what you can buy, and how much you shall pay for the product, are all under control and held to a minimum. We could confiscate the entire national income, but that would be fascism. We could compel people to keep some idle savings by preventing them from spending, but that will not control prices.

Continuing, Mr. Parnes pointed out that in 1941 fiscal year we were spending \$28,000,000,000 for war products, and in the 1942 fiscal year, \$70,000,000,000 for war products. While these increases in the war goods were going on, consumer goods declined month by month; so did all types of durable goods. At the same time employment rose 13 percent in the year

YOU CAN STILL SELL
GEHL STOKERS
and Stoker-Fired
WATER HEATERS



Gehl Domestic Stoker in three sizes



Gehl Stoker-Fired Water Heater

Government restrictions have been released on retail stoker sales. Write us your requirements and we shall be glad to give you the very best service that curtailed production will permit.

GEHL BROS. MFG. CO.

Established 1867

Dept. BH-801

West Bend, Wis.

ending April, 1942, and manufacturers' payrolls doubled in the last year. Prices have risen 17 percent by one authoritative index, and the sum of this is that we have a greatly expanded payroll and a vastly shrinking supply of goods. Economists say that we have now an \$86,000,000,000 income and a production of \$65,000,000,000 worth of consumer goods which can be purchased, leaving a \$21,000,000,000 floating potential inflation. One thing greatly needed, said Mr. Parnes, is control over farm prices, control over wages paid to labor; and if these controls are superimposed over the present price ceilings, then we may be able to actually control inflation and prevent a runaway economy.

Overhead Expense

One of the very interesting annual presentations at the Pennsylvania program is the discussion of overhead expense which during the past two or three years have been presented by J. E. Davis, chairman of the Overhead Expense Committee. Chairman Davis announced that he had obtained a total of 20 reports. Of these four shown in group 2 of the tabulation were not useful because certain essential data were missing. Another two were not used to strike any average figure because the total gross income of these two firms far exceeded the gross incomes of the other firms reporting. This left a total of fourteen firms reporting gross business from \$9,000 to \$70,000, productive payroll from \$3,000 to \$15,000 and overhead expenses from 60 percent to 218 percent. Believing that these figures will be of considerable interest, they are published with this report.

HELP!
for BUSY DEFENSE
HOUSING
CONTRACTORS . .

E-Z-ON
damper regulators
Help you
SAVE
Time and Labor!

Jobbers everywhere Stock E-Z-ONS.

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Buy genuine Round Oak repairs

Don't take a chance with inferior substitute furnace repair parts. To assure better fit, longer service, and complete customer satisfaction, buy only genuine Round Oak parts for Round Oak furnaces, stoves, or ranges — famous for quality since 1871. You are assured of prompt shipment, too, — for the largest possible stock is maintained, through the emergency.

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STOVES • RANGES • FURNACES • OIL
BURNERS • AIR CONDITIONERS • STOKERS

YOUR BLOWER REQUIREMENTS

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• **BLOWERS FOR EVERY PURPOSE**

HY-DUTY Blowers, 9 1/4" to 25".
Top and Bottom Horizontal, and Top
and Bottom Vertical Discharge.
Top and Bottom Motor Mounting.
Dual Units also available.



• **CENTER DISC WHEEL**

Double Inlet, Double Width.
Reinforced Center Disc.
Designed for Modern Air Conditioning and
Heating Applications.
Sizes, 4 1/2" to 50".



• **SINGLE INLET WHEELS**

For Oil Burner, Stoker, and Air Conditioning
Applications.
Sizes, 4 1/2" to 50".
Variety of Blade Lengths for each diameter.

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Write for Catalogues showing complete Performance Data.
Experienced Engineering Department available to help solve your
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BURT STANDARD GRAVITY VENTILATORS

Not new—but they have never been excelled.



In Burt's Standard Gravity you find a ventilator that has big air moving power, fits most any situation, and is priced to give unusual value. It is correctly designed, made of quality materials, strong and durable. Standard Gravity is one of a wide line of roof ventilators made by Burt—there's a type and a size for every application. Remember, Burt Engineers are glad to help you estimate and lay out plans.

THE BURT MFG. CO.
ROOF VENTILATORS • OIL FILTERS
EXHAUST HEADS
401 Main St., Akron, Ohio

SEND FOR CATALOGS
Burt Engineers
are glad to
help on plans

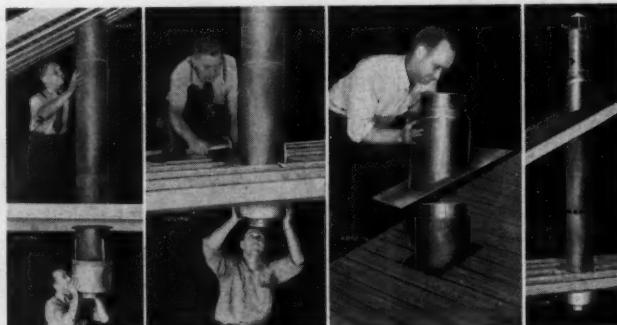
Kruckman-Metals Situation

(Continued from page 21)

products needed for War," declared—"Recent emphasis on semi-finished steel for shipment abroad, plates, shapes, alloys, rails and rail accessories, and tin plate, resulted in diversion of steel from bars, sheet, pipe, wire and similar products. Quotas for each product and for each producer will make possible the maximum necessary output of each product. Policy in recent months was to obtain the greatest possible tonnage of steel plates without regard to the effect of this diversion on other products. Under the new policy those who produce plate only will be expected to continue to produce the highest tonnage possible. Those with a diversified line will be expected to fill their quotas of other products before they turn out any overquota plates."

We're Still Arguing Steel "Capacity"

The Iron and Steel Branch makes this striking statement in its report: "Definite steel requirements for the entire War program have always been difficult to obtain and for the most part were incomplete and misleading. Total steel requirements, present and future, for the entire War program, by specified products and tonnages have not been fully established. Plates, current and near future requirements, have been closely determined but even on this emphasized product, it is not possible safely to predict future requirements as the basis for establishing any further



The Vitroliner Chimney

THOUSANDS have been installed. Thousands more are being installed at the present time by contractors for Defense Houses. Complete installation takes twenty minutes.

Vitroliner Chimneys give twice the draft of a masonry chimney. Only highest quality materials used. Fully insulated. Patented features.

For details write to

CONDENSATION ENGINEERING CORP.
2515 Archer Avenue Chicago, Illinois

needed plate capacity. . . . In the earlier days of the defense program there was considerable steel produced for civilian consumption. Such production has since been gradually eliminated. At the present time only a small restricted tonnage is provided for so-called civilian use, and an analysis of the end products from such tonnage discloses direct connection with the War program. . . . Steel demands for the War are now far in excess of supply."

Scrap Is Still a Problem

Lessing Rosenwald and Paul Cabot report over 14,000,000 tons scrap were collected the first six months of this year. At least 17,000,000 tons are set as the goal for the last six months. You get some idea about desperate need for scrap when you hear Messrs. Rosenwald and Cabot say that in the very near future you will be obliged to use your automobile, or clearly justify its possession, or expect to have it grabbed by Government under the requisitioning powers. It will either be used by Government as a vehicle, or more likely, it will be used as scrap. They have already begun seizing abandoned street car tracks, equipment, and railroads that are solely operating to maintain rights-of-way. The scrap inherent in these properties, plus the scrap in socalled abandoned mines, is expected to provide substantial quantities of metal.

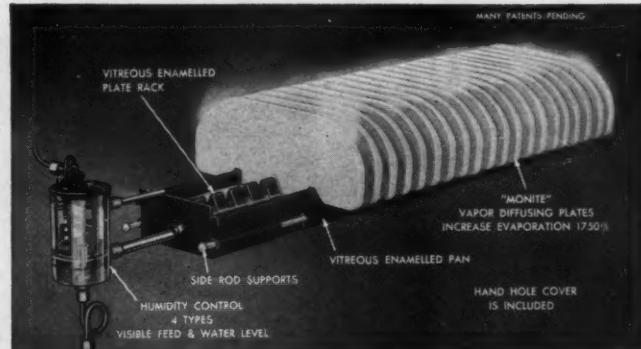
They are even setting up in much detail the organization to take the next step, the machinery to "tear down," which means they will use the requisitioning power of the War laws to take down metal balconies, steps, railings, gates, fences, and all other metal objects, on houses, in parks, factories, in any

IMMEDIATE DELIVERY OF REPAIR PARTS FOR THOSE "RUSH JOBS"

THE height of the furnace repair business is drawing near . . . and this year the volume will be greater than ever before . . . for furnaces MUST BE REPAIRED—to assure comfortable and economical heating during the coming winter.

Securing repair parts rapidly will be one of the problems you will have to contend with in giving your customers your usual service . . . here Northwestern can help you for they are in a position to supply every desired part . . . for all makes of furnaces . . . supply them quickly and with the assurance that they will fit perfectly. Order your repair parts from Northwestern and be sure of servicing your customers quickly and efficiently . . . and don't forget . . . make a scrap heap of all worn out and salvaged parts, and see that they reach our government as soon as possible.

NORTHWESTERN STOVE REPAIR CO.
662 West Roosevelt Road Chicago, Illinois



WE GUARANTEE PLENTY OF WORK FOR YOU

on heating plant improvements to save fuel. Our magic cards find the prospects. Our Engineering Report forms tell when and how much fuel is being wasted. This is so new, high grade and impressive, it lands all kinds of furnace work orders.

GET OUR SELLING SYSTEM

Full details are waiting for you.
Don't pass this up—it means orders.

MONMOUTH PRODUCTS CO.
1933 E. 61st St. Cleveland, O.

The Greatest Name in Humidification

*Today's War-Time
Industrial Market
is Your
BEST BET NOW*

-LET CLARAGE EQUIPMENT HELP SELL THE JOBS!

New war plants—and plants being converted—need heating, ventilating, exhaust and blow pipe installations. This high priority business can be your salvation. Specify Clarge Fans, Blowers, Unit Heaters—Nationally known and Nationally accepted, these highest quality air handling products help you land the jobs. Write for any information desired.



UNIT HEATERS

COMPLETE AIR CONDITIONING
COOLING
VENTILATION
FACTORY HEATING
MECHANICAL DRAFT
FANS AND BLOWERS
FOR INDUSTRIAL NEEDS

CLARAGE FAN COMPANY—KALAMAZOO, MICH.
SALES ENGINEERING OFFICES IN ALL PRINCIPAL CITIES



H&C DAMPER REGULATOR SETS



No. 40 1/4 S

ECONOMY TYPE. Three ways to install: 1. With lock nut but without handle (for tamper-proof setting). 2. With handle and lock nut. 3. With handle and wing nut. Nut prevents damper vibration. Handle always indicates position of damper (Patent 2,146,142). Furnished with handy snap end bearing. Complete set in carton. Made only with $\frac{1}{4}$ " bearings.

LIST PRICE.....No. 40 1/4 S.....\$0.30



No. 50 1/4

BRACKET TYPE. Nut holds damper securely, preventing vibration. Handle which indicates position of damper, may be left in place permanently or removed after adjustment (to prevent tampering). Snap End Bearing on $\frac{1}{4}$ " size, Solid Bearing on $\frac{3}{8}$ " size. Each set individually packaged.

LIST PRICES.....No. 50 1/4.....\$0.40
No. 50 3/8.....\$0.60



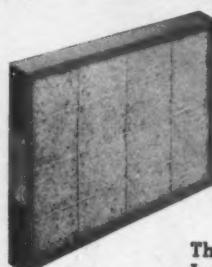
No. 80 1/4

DISK TYPE. Like all H&C sets, this set is equally adaptable to splitter or regular dampers. Snap End Bearing on $\frac{1}{4}$ " size, Solid Bearing on $\frac{3}{8}$ " size. All parts are rust proofed. Complete set in carton.

LIST PRICES.....No. 80 1/4.....\$0.40
No. 80 3/8.....\$0.60

See your jobber or write for literature and sample.

HART & COOLEY MANUFACTURING CO.
HOLLAND, MICHIGAN • CHICAGO OFFICE: 61 W. KINZIE ST.



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The result of fifteen years experience
Lower in cost — Higher in quality
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FOR ALL

HEATING UNITS

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Distributors of All Heating and
Air Conditioning Equipment

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and every place where metal may be found that serves no absolutely necessary use, or for which some substitute may be provided. There are already over 15,000 State and local salvage committees to cooperate in these drives. The farms will be the target of a drive to start immediately. Fundamentally the problem of metal, for War and for civilian use, seems to rest upon developing more sources of ore supply. Remember, we are supplying metal to the United Nations who are sprawled over more than half the planet.

Blind Riveting Explosive Riveting

(Continued from page 49)

trolled, that the expansion it effects may be held within limits of 25/1000 of an inch. Time of installation is 1 1/2 to 2 1/2 seconds, from the time the riveting iron is applied until expansion takes place.

The rivets now manufactured are of aluminum alloy. Of varying diameters and sizes, the rivets are of the modified brazier head and countersunk types, the latter permitting flush riveting. The rivets are installed in the "age-hardened" condition and do not require refrigeration after heat treatment. The rivets are safe to handle; will not detonate in mass and are insensitive to shock and friction.

Fabricating War Products

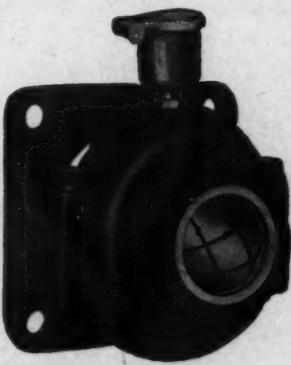
(Continued from page 52)

ing second, and we are concerned with this task, the nipples and fittings and the plating attended to by someone else.

In demonstrating here the feasibility of production, in small shops, of the above discussed aircraft accessories we are guided by the thought that many other similar constructions might be figured out, by the small or medium size shop, and the accessories fabricated, profitably, by them. The large plants are more and more attending to large and more complicated products, with the smaller items, like the above accessories, farmed out. And we reiterate: it is of no good to figure on these jobs on the basis of new machines and expensive tools, because even if we could get them, we could not get them in time.

True, the subcontractor assured of several thousands of the units being allotted to him successively each month, might go to work on the initial product by means and processes described, meanwhile trying to get the machines and the tools. If he succeeds getting them, the better. But if he does not get them, he already is producing by the self-constructed means, and as long as he maintains production on schedule, the costs of hand operations might not exceed the costs of machinery and tools and, no one knowing how soon the plane constructors will change to different gadgets, requiring new processes and tools, the contractor might fare best who does not invest too much in equipment.

This Bearing May Help Your War Production



Randall Flange
or Side Mount
Self-Aligning
Self-Lubricating
Pillow Block

Randall
BEARINGS

RANDALL GRAPHITE PRODUCTS CORP.
Dept. 811 609 W. Lake St. Chicago, Ill.



Std. Arr. No. 1
for Belt Drive

Write us about your problems. Send for Bulletin No. EX-41
BAYLEY BLOWER COMPANY
1817 South 66th Street Milwaukee, Wis.

New and improved "EX" Fans are now available in standard sizes from No. 15 to No. 80 and from 200 to 30,000 CPM Capacity with pressures up to 15" W.G. These fans are commonly used for exhaust problems to handle dust, fumes, shavings, etc., but can be adapted for forced draft service.

"EX" Fans are furnished in all standard arrangements of the N.A.F.M. The design is such that it can be easily modified to suit special assemblies, thus "EX" Fans are ideal for resale purposes, as part of factory assembled units.

Write us about your problems. Send for Bulletin No. EX-41

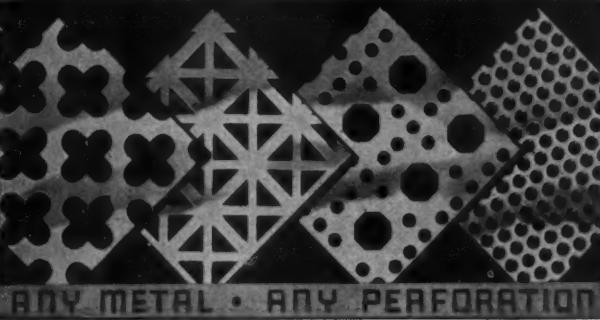
BAYLEY BLOWER COMPANY
1817 South 66th Street Milwaukee, Wis.

THE QUALITY OF
PAYNEHEAT EQUIPMENT
IS STANDING USERS
IN GOOD STEAD TODAY!



PERFORATED METALS

Industrial and Ornamental



ANY METAL • ANY PERFORATION

Industrial Perforations include all sizes of round, oblong, and many special shaped perforations, for Screening, Grading, Draining and Guarding purposes. Our line is very complete.

Ornamental Perforations are used in Architectural Grilles, Radiator Enclosures, Metal Furniture, Cabinets, Stoves, etc. In addition to the standard shapes we have many exclusive and attractive designs suitable for different uses.

H&K workmanship is unsurpassed.
Write for prices and other information.

The Harrington & King Co.
PERFORATING

5649 Fillmore St., Chicago, Ill.

New York Office, 114 Liberty St.

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HOOKS & HANGERS

Weld Hook No. 9

THRU
LEADING
JOBBERS
EVERWHERE

BERGER BROTHERS CO.
Main Office & Factory
229-237 Arch St., Philadelphia, Pa.

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BARBER
Gas Pressure
REGULATORS

Sizes $\frac{1}{4}$ up
Certified by
A. G. A. Testing
Laboratory
Write for Prices

THE BARBER GAS BURNER CO.
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RYERSON CERTIFIED STEELS

10 STRATEGICALLY-LOCATED PLANTS

Principal products include—Alloy Steels, Tool Steels, Stainless Steel, Hot Rolled Bars, Hoops and Bands, Beams and Heavy Structural, Channels, Angles, Tees and Zees, Plates, Sheets, Cold Finished Shafting and Screw Stock, Strip Steel, Flat Wire, Boiler Tubes, Mechanical Tubing, Rivets, Bolts, etc. Write for Stock List. Joseph T. Ryerson & Son, Inc. Plants at: Chicago, Milwaukee, St. Louis, Cincinnati, Detroit, Cleveland, Buffalo, Boston, Philadelphia, Jersey City.

WISS "METAL-MASTER" SNIPS

(Compound Action)



"TWICE
THE WORK
WITH HALF
THE
EFFORT"

TWO MATCHED PATTERNS M1 (Cuts Left) M2 (Cuts Right) Cut circles, squares and any irregular patterns on Stainless, Dural and Monel Metals with the greatest of ease. Jaws of wear-resisting Manganese Molybdenum Steel. Handles hot-pressed from tough Chrome Vanadium Steel. Nickel steel bolts and nuts to Government specifications. All parts interchangeable. Detachable rubber handle grips at slight extra cost.

J. WISS & SONS CO.
ESTABLISHED 1848

NEWARK, N. J.

TRY US FOR QUICK DELIVERY

Sheet Metal Fabricating

MACHINES & TOOLS

Write for Catalog and New Bulletin No. 53

WARD MACHINERY CO.

564 W. Washington Boulevard
Chicago, Illinois

How to Provide
LARGE SCALE VENTILATION
Without Prohibitive Cost . . . THE NEW
Swartwout Multiple Heat Valve



Gives you new opportunities to sell quick installations and effective roof ventilation.

*Write for details to—
The Swartwout Co.
18511 Euclid Ave., Cleveland, O.*

Insulation Is Plus Business

(Continued from page 40)

complaints on the heating make a substantial springboard from which to launch the insulation survey and sales story.

Beginning last summer and being used this summer, this company is advertising through newspapers and direct mail a "trick" idea which so far has proved profitable. It's the "Toledo Is Bombed" scheme whereby furnaces are tested for gas tightness by placing a smoke bomb in the furnace. If the smoke comes out into the house—there's a leak and re-cementing job or a repair is in order. If no smoke shows the furnace and air lines are in good condition and only a cleaning is indicated.

This is a dramatic stunt, so simple that every home owner willingly accepts it as proof of what he ought to have done to his furnace. Schmidlin offers it free during the early summer months and up to date its cost has been repaid many times over in increased work per order.

Too often, Schmidlin Bros. believe, the heating man fails to appreciate what insulation will really do. Often the addition of a stoker, a blower, an oil burner brings better heat when actually it is the insulation added at the same time which corrects the original trouble. Fre-

REPAIR PARTS FOR ALL MAKES STILL AVAILABLE



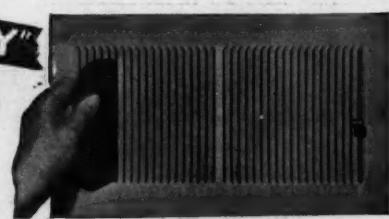
With priorities restricting sales of new equipment, repair business is more essential than ever. PEERLESS dealers can still depend upon prompt deliveries of repair parts for ALL MAKES AND AGES of furnaces. Get the repair business now and you'll be all set to get the new jobs after the war. PEERLESS builds warm air heating equipment in all sizes, including heavy duty units for the largest buildings. Write for dealer proposition and repair parts catalog.

PEERLESS FOUNDRY CO., 1853 Ludlow Ave., INDIANAPOLIS

"BEND-EZY"

REGISTERS

LOW COST
EFFICIENT
DURABLE



PERFECT FOR DEFENSE PROJECTS



AIR CONTROL GRILLES
WRITE FOR CATALOG! Complete information on BEND-EZY Registers, STANDFORATED Grilles, Industrial, Ornamental Perforations, Stampings.

STANDARD

3137 W. 49th PLACE

STAMPING &
PERFORATING CO.
CHICAGO, ILLINOIS

quently heating men of many years experience recommend an additional cold air or more warm air to correct cold rooms when insulation would do a better job at less cost and with less fuss.

Rooms with very high exposure, like sun porches, servant's wings (sometimes five sides exposed) can be heated—so long as the heating plant operates—but when the furnace shuts down such rooms cool faster than the thermostat room and so become cold. Also such rooms take longer to heat up and the furnace may shut down before these rooms are well heated. Insulation will often remedy this condition.

The Farmer As A Heating Prospect

(Continued from page 37)

a permanent wood strip and along the other side a removable wood strip. The panel can then be removed for cleaning by unscrewing the wood strip and sliding the panel out.

As the photographs plainly show, the workmanship of a Conzelman installation is something for the handy man to shoot at. Pipe sections are metal screwed, tape is used only where the pipe meets the duct or boot or bonnet. And the installation is engineered by Standard Code when possible to the particular house and not by amateur's guess from a mail order catalog.

SPOT WELD WITH AN **ACME "Hot Spot"** **WELDER**

Proven utility for over 26 years in thousands of sheet metal fabricating plants.

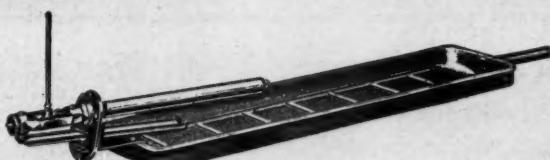
Write for Literature and Prices.

Complete Range of Sizes
Lifetime Guarantee!

ACME ELECTRIC WELDER CO.
2618B Fruitland Road Los Angeles, Calif.



THERMO-DRIP HUMIDIFIERS



They're heat controlled! That's your greatest assurance that the heat produced by your customers' furnaces will be properly tempered with moisture—and what a vast difference that will make in building goodwill and sales for you.

AUTOMATIC HUMIDIFIER CO.
18th and Main Streets CEDAR FALLS, IOWA

ON ACTIVE DUTY! —BUT STILL AT YOUR SERVICE!

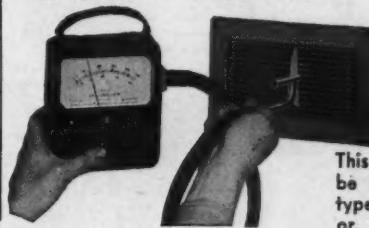


Because R. & G. Registers and Grilles are reporting for duty on scores of essential war jobs, our products for civilian use are necessarily limited. However, our officer's are always available for consultation on any problem within our scope.



REGISTER & GRILLE
MANUFACTURING CO., Inc.
70 BERRY STREET BROOKLYN, N. Y.

NOW! ACCURATE AIR VELOCITY MEASUREMENTS at INTAKE GRILLES!



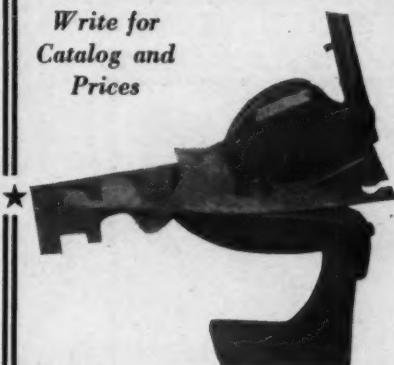
This new jet attachment can be added to existing Tube-type Velometers now in use, or can be purchased with

other standard jets and new Velometers. The new intake grille jet is offered only in the spot type since the center reading only has proven to be sufficiently accurate for all commercial purposes. Write for information.

Illinois Testing Laboratories Inc.

412 N. La Salle St., Chicago, Ill.

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Write for
Catalog and
Prices



Speed Up "AIA" Orders
with a

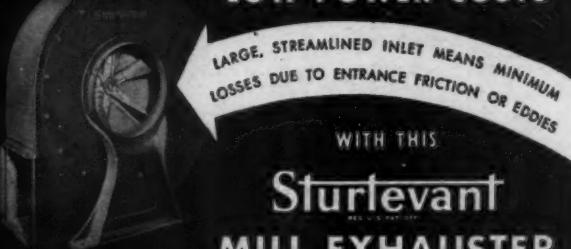
BEVERLY SHEAR

Throatless shears that cut any shape . . . straight, round or irregular. FASTER—no distortion! Precision-accuracy! Order No. 1 for 14 gauge. No. 2 for 10 gauge. No. 3 for 3/16 inch mild steel and 10 gauge stainless.

BEVERLY SHEAR CO.
3000 W. 110th Pl., Dept. 1
CHICAGO, ILL.

HIGH EFFICIENCY...

LOW POWER COSTS



B. F. STURTEVANT COMPANY
Hyde Park, Boston, Mass.
Branches in Principal Cities

LARGE, STREAMLINED INLET MEANS MINIMUM
LOSSES DUE TO ENTRANCE FRICTION OR EDDIES
WITH THIS

Sturtevant
REG. U. S. PAT. OFF.
MILL EXHAUSTER

"Designed and Built by the Pioneer"

★ War Time Trade News ★

Syncromatic
T. M. REG.
**COAL OIL
AND
GRAVITY FORCED AIR
STEEL FURNACES**

3373 NO. HOLTON ST., MILWAUKEE, WIS.

NIAGARA
FURNACES

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★ **FORCED WARM AIR HEATING EQUIPMENT** ★
★ **for REPLACEMENT . . . for DEFENSE HOUSING** ★

★ A dependable line of Gravity and Forced ★
★ Warm Air Furnaces to carry you through the ★
duration. ★

THE FOREST CITY FOUNDRIES COMPANY
2500 W. 27th Street

Cleveland, Ohio

Leader

KOOLSTACK
FURNACES
FOR STOKERS
OIL or HANDFIRED
50,000 to 200,000 BTU's
Patented Damper
Uses All the Heat
in the Added Heating Surface

THAT
IS SOMETHING
TO SELL

LEADER IRON WORKS, Inc.
Decatur Illinois

GILCO
Automatic
FURNACES and WATER HEATERS



J. L. GILLEN CO.
DOWAGIAC • • MICH.

Large sections of the factories and foundries of THE WILLIAMSON HEATER COMPANY, Cincinnati, Ohio, have been converted to War Production. Many of their employes have entered active service—others have been “converted” to the Williamson production front.

W. L. McGRATH, executive vice president, is one of two members of the Advisory Committee of the Plumbing and Heating Industry, selected by the Office of Production Management.

GIL DENGES, heating engineer, designer, teacher of air conditioning and salesman is war production inspector and in charge of quality control.

HUGH CALLAHAN, former jobbing sales manager is now the Government Subcontract sales manager.

AL DeCAMP is now teamed up with HOWARD PEARSON in the Tools and Methods Department.

HOWARD PEARSON, little known to the trade, is now Armament Tools and Methods Engineer.

R. L. (BOB) HERMANN, formerly head of the heating Engineering Department is now assistant to Howard Pearson.

HAROLD KAHLE is now in the War Production Drafting Department, assistant to Gil Denges on Quality Control.

AL RAHE is now in the War Production Purchasing Department.

Conco Corporation, Mendota, Illinois, reports ten per cent of the personnel are now in service.

W. S. Michael, vice president and general sales manager of Conco is now head man of a division doing 100 per cent all out war work.

PAT MURRAY, Sales Promotion Manager of Conco, is now in the Machine Procurement Department. His job is to untangle priority classifications.

W. H. LONG, member of the Sales Promotion and Advertising Department of the York Ice Machinery Corporation, has been commissioned an ensign in the United States Naval Reserve. He reports on August 1st to Cornell University for a training period.

ARTHUR F. WIDDOWFIELD, electrical and sales engineer for many years for Mercoid Corporation, Chicago, is now in the United States Navy as a Lieutenant (jg), stationed at the Naval Training School, Harvard University, Cambridge, Mass.

EDWIN M. BURGESS of Rock Island Register Co., Rock Island, Illinois, has been promoted from first class private to corporal, and is stationed at Fort Bragg, N. C.

MOTOR WHEEL CORPORATION, Lansing, Michigan, manufacturer of the Duo-Therm fuel oil burning furnaces and water heaters, was awarded the coveted United States Navy “E” at a ceremony held in Lansing on June 9. Formal presentation was made by Rear Admiral G. H. Rock, U.S.N. (Retired)

CARTER S. COLE, Engineer with Copper & Brass Research Association, New York City, and a frequent contributor to the technical pages of American Artisan on the proper application of copper roofing, gutters, etc., is now with the Specification Branch, Bureau of Industrial Conservation, WPB, Washington, D. C.

D. R. HUGHES, operating the Hughes Heating and Air Conditioning Co., Cincinnati, until July 1st, has joined the army. LEON KUEMPFL, who has been operating the Cincinnati office of the company will continue the business as The Kuempel Engineering Co., located at 2331 Gilbert Avenue.

At Republic Steel Corporation, Cleveland, 5510 employees have changed working clothes for war toggs. Many of these have distinguished themselves in the service of their country but top man in this respect is Lieutenant Commander Francis J. Thomas, Lubrication Engineer. He has been awarded the Navy Cross for “Heroism, Courage, Devotion to Duty and Gallant Conduct” during the December 7 attack on Pearl Harbor.

Send Us News of YOUR War Activities!

For the duration, the columns of this “War Time Trade News” Section will be devoted to news of the industry’s personnel and organization war efforts and activities.

If some of your personnel join the armed forces, or various government agencies, let us know . . . in fact, anything pertaining to the industry’s war achievement is news—send it in. The purpose of this section is to let the industry know, insofar as such news is permitted, what the companies are doing in war production . . . and where the many familiar faces that are missing have gone. Help us keep the trade informed. Send in your news NOW!

★ War Time Trade News ★

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on, Chicago,
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School, Harry
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Promoted from
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The new War Department Building at Arlington, Virginia, will be completely air conditioned and will be controlled by Minneapolis-Honeywell pneumatic equipment.

This Pentagon will be one of the finest buildings in Washington. Its periphery of one mile is made up of five sides, each one-fifth of a mile in length. Each section is built separately and occupied as soon as finished. The first section is now completed.

The air conditioning systems cool, circulate and filter the air in the summer; circulate and filter in the heating months. Heat is supplied by window radiators circulating hot water. The temperature of the hot water is determined by the intensity of the sun, which is measured by equipment furnished by Minneapolis-Honeywell.

In addition to the M-H equipment, the Brown Instrument Co. (a subsidiary of Minneapolis-Honeywell) furnished the instruments which record temperatures, etc. in the building.

RALPH B. MEISENHEIDER, assistant to the president of the York Ice Machinery Corporation, has been appointed Director of War Contract Progress. Duties will consist of coordination and liaison responsibilities within the Sales, Engineering, Manufacturing, Administrative and War Material Division.

HOWARD B. SCOVILLE, Sales Manager of the Econ-O-Col Stoker Division of Cotta Transmission Corp., Rockford, Illinois, has been commissioned a First Lieutenant in the U. S. Army.

Although his R.O.T.C. training was in the Field Artillery, because of Scoville's experience in engineering transmissions, he has been assigned to the Tank and Combat Vehicle Division of the Ordnance Department, Chicago District, where he heads up the Transmission and Diesel Engine Section.

HAROLD KIRK, Heating Engineer of Peerless Foundry Company of Indianapolis, is now in the armed forces of the United States Signal Corps and is at present taking his preliminary training at Harvard.

A few weeks ago American Artisan received a telephone call from FRANK MCCOY, who was stopping over on his way home to Galveston, after having been torpedoed on an oil tanker on the East Coast and escaped uninjured but without any clothing or funds.

Mr. McCoy conducts a roofing and sheet metal business in Galveston, Texas. He wished to do something to help in the present war and so is serving as a seaman on tankers plying between South Texas ports and the Eastern Seaboard. His experiences have been hair-raising. In the last few days two notes from Mr. McCoy have been received, from Glasgow, Scotland, and Manchester, England, as follows:

Glasgow, Scotland—"It is daylight nearly all night here. The hills are very beautiful now. The pastures, crops and forests make different shades of green; part are in sunlight and part in shadow.

"The weekly ration here is 2 oz. sugar, 2 oz. butter, 1 oz. fat, 1 egg and 24 cents worth of meat. Stew meat is 48 cents per pound and steak 72 cents. Over \$1,200 income, the tax is one-half on single men."

Manchester, England—On the backs of a budget of six photogravure views of Manchester, Mr. McCoy writes: "The buildings on the left side of Picadilly are gone. The buildings around the cathedral are demolished. The entire block on the left side of Picadilly Gardens is entirely gone. Women in uniform are literally everywhere. In fact I believe more than men.

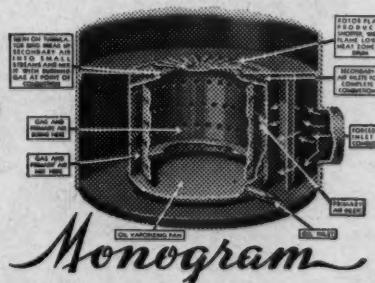
"The cathedral of Coventry is just a pile of rubbish. Roll roofing (2 ply) is \$3.40 per roll in Coventry. These people use very little of it. They want Corrugated asbestos, slate or tile, or nothing. Asbestos shingles can not be sold in Britain. The people think they are no good. Asphalt shingles are unheard of. Wood shingles are unknown.

"Even after tremendous damage, they will not have wood houses. They think they are not fit to live in. They would rather live in a 200-year old stone or brick structure, no matter how dilapidated."

Famous Patented MONOGRAM Vaporizing Burner Provides Highest Known Operating Efficiency with Oil

**Full Forced
Winter Air
Conditioners**

♦
**Booster
Gravity
Units**



**Utility
Room
Units**
♦
**Automatic
Water
Heaters**

The QUINCY STOVE MFG. COMPANY, Quincy, Illinois

ACCURATE

DEPENDABLE

MASTER HEAT REGULATOR

TYPE A-23 positive snap action regulator operates on a differential of only $\frac{1}{2}$ degree.

WHITE MFG. CO., 2368 University Ave., St. Paul, Minn.

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Buy U. S. War Bonds

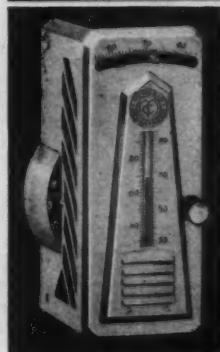


With manufacturing facilities converted 100% to War Production, our research department is devoted to designing improved units to be added after V day to the complete CONCO line.

CONCO

CORPORATION
Div. of H. D. Conkey & Co.
MENDOTA, ILLINOIS

A MERCOID FUEL SAVER



An inexpensive fuel saving thermostat, recommended to replace regular thermostats on all automatically fired heating equipment or damper motors.

With the Mercoid Day-Night Control there are no chilled rooms before retiring. You control the thermostat instead of it controlling you. A simple twist of the hand and it is set for a lower temperature while asleep, and in the morning before arising, the day temperature is automatically restored.

It meets wartime fuel economy requirements, besides it has a Mercoid corrosion-proof mercury switch, insuring longer control life and better performance.

The Mercoid Corporation
4208 Belmont Avenue, Chicago, Ill.

ECON-O-COL the "Stronghearted" STOKER

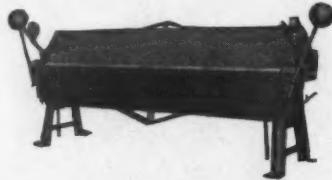
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ROCKFORD ILLINOIS

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JOLIET, ILL.

FILTERS

CHICAGO STEEL BRAKE



BEST BY FORTY-TWO YEARS TEST

DREIS & KRUMP MFG. CO.
7404 LOOMIS BLVD.
CHICAGO

Bremil PORTABLE SHEARS

Your work will proceed faster and neater when you use Bremil Portable Shears on the job or in the shop. Write today for literature showing complete line.

ALL-ALLOY No. 2 cuts up to $\frac{1}{4}$ " steel plate.

ALL-ALLOY No. 1 cuts up to No. 11 gauge strip or sheet. Special blades may be obtained for shearing stainless steel.

BREMIL MFG. CO., ERIE, PA.

My family was worried

"Certainly glad I stop at recognized hotels on my many business trips. Once, serious illness developed suddenly at home. Though I'd left no forwarding address I was easily traced to my hotel by phone." D. B., Rochester, New York.

AMERICAN HOTEL ASSOCIATION



FOR A FRESH START

STOP AT A **HOTEL**

Equipment To Test Finishes

(Continued from page 47)

the pattern can not be discerned. Of the more elaborate devices, the Pfund Cryptometer is an example. While somewhat expensive, it is easy to operate and with little experience an operator may make very accurate determinations as to what thickness of a particular finishing material is required to hide a completely black or completely white surface.

Chemicals and Reagents

Tests for quality, cost, etc., often require the use of chemical compounds. Those compounds and materials most frequently used are listed below:

Acids

| | |
|-------------------------|----------------------------------------------|
| Hydrochloric Acid | (HCl) |
| Nitric Acid | (HNO ₃) |
| Sulphuric Acid | (H ₂ SO ₄) |
| Acetic Acid | (HCO.CH ₃) |
| Citric Acid | (COHCOOH(CH ₂ OOH) ₂) |

Bases

| | |
|---------------------------|----------------------|
| Sodium Hydroxide | (NaOH) |
| Potassium Hydroxide | (KOH) |
| Ammonium Hydroxide | (NH ₄ OH) |

Salts

| | |
|------------------------|------------------------------------|
| Sodium Chloride | (NaCl) |
| Sodium Carbonate | (Na ₂ CO ₃) |
| Ferrous Sulphide | (FeS) |

Solvents

Methyl Alcohol, Ethyl Alcohol, Normal Butyl and Isobutyl Alcohols, Amyl Alcohol. Ethyl Acetate, Normal Butyl and Isobutyl Acetates, Amyl Acetate. Acetone. Benzol, Toluol, Xylool. Carbon Tetrachloride. Petroleum Spirits, Kerosene, V. M. and P. Naphtha, White Gasoline.

Miscellaneous

Mercury, Sulphur, Petrolatum

While the requirements for the above materials will vary depending on individual requirements, it is suggested that at the outset the dry materials be purchased in one pound lots and that the liquids be purchased in one gallon quantities. Grades of materials will also vary depending on specific needs but for general use the technical grade rather than the commercial or chemically pure grades is suggested.

Illustrations courtesy of Eimer and Amend Co. and Taylor Instrument Cos.

Florida Wage Rates

The July 15 issue of "The Florida Roofer," published by The Roofing & Sheet Metal Contractors Association of Florida, lists the new Manual Rates for Workmen's Compensation Insurance for the State of Florida as follows: Roofing \$5.46 per \$100 of payroll; sheet metal \$2.01 per \$100 of payroll and the clerical rate is \$0.06 per \$100 of payroll. This represents a reduction of \$0.73 for roofing and \$0.23 for sheet metal classifications.

AMERICAN ARTISAN

Service Section

BRUMME BOOSTER FANS

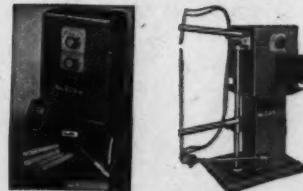


Brumme Mfg. Co., 314 So. Artesian Ave., Chicago

For a Decade — BRUMME BOOSTER FANS have been solving the "Cold Room" and "Hot Basement" problem for thousands of Furniture Men.

Literature on Request

WELDING HEADQUARTERS



Electric welding equipment of every description to weld from a watch case to a door. Special or standard SPOT WELDERS from $\frac{1}{4}$ to 500 K.V.A. A.C. Arc Welders from 100 to 400 Amps. We invite contract Spot Welding in large or small quantities.

EISLER ENGINEERING CO.

CHAS. EISLER
761 S. 13th ST. (Near Avon Ave.) Newark, N. J.



SOLDER WITHOUT PRIORITIES!

Esco Victory Solder Solves Your Problem Today.

Recently perfected—contains no tin. Flows freely. No priority order needed. As little as 5 lbs. shipped on trial orders at case prices.

Prompt shipments. Act quickly.

Eastern States Supply Co.
Dept. AA
127 Troutman St. Brooklyn, N. Y.

BLOWER WHEELS & KIDNEY TYPE FANS SURPLUS STOCK—IMMEDIATE DELIVERY

Multi-Blade Blower Wheels

332—Double Inlet, $12\frac{1}{2}$ " diameter,
 $1\frac{1}{2}$ " width, $\frac{1}{2}$ " bore.
72—Single Inlet, $9\frac{1}{2}$ " diameter,
 $3\frac{1}{2}$ " width, $\frac{1}{2}$ " bore.

Kidney Type—Propeller Fan Blades
195— $7\frac{1}{2}$ " diameter, $\frac{1}{2}$ " bore
2100— $9\frac{1}{2}$ " diameter, $\frac{1}{2}$ " bore

Offered for immediate delivery at a good price.

Surplus stock—new.

SCHWITZER-CUMMINS COMPANY,
Heating Division—1145 East 22nd St.
Phone Wa-3391 Indianapolis, Ind.

Trademark YAGER'S Soldering Salts — Paste

Reg.

Two standard fluxes for all soft soldering. Safe, quick, certain. Buy them at your jobbers or write us if he cannot supply you.

$\frac{1}{2}$ lb., 1 lb., 5 lb. cans; 2 oz., 6 oz., 12 oz.

ALEX. R. BENSON CO., INC., HUDSON, N. Y.

BLOWERS — FANS — EXHAUSTERS

THOROUGHLY REBUILT, for perfect performance. All types; all standard makes. All sizes including the big ones. Hundreds in stock, meeting all requirements. Attractive prices. Fully guaranteed. Expert engineering counsel. GENERAL BLOWER CO., Engineers, 403 North Peoria Street, Chicago, Illinois.

Classified

SERVICE SECTION: Rates for display space similar to above in Service Section are \$5.00 per inch per insertion.

One-inch minimum space accepted. **Classified Section:** Rates for classified advertising are 5 cents for each word including heading and address. Count seven words for keyed address. Minimum \$1.00 for each insertion. Cash must accompany order.

Better for Every Spraying Purpose

MARLEY SPRAY NOZZLES



"Tops" for Air Washing, Humidifying, Brine Spray Lots, etc. Marley nozzles lead all in sales and in profits to you.

*Finer, more uniform spray.
*Effective operation at low pressures. *No internal parts to clog or wear.

MARLEY CO., INC. Write for Literature Now! Kansas City, Kansas

The American Artisan Service Section presents a golden opportunity to contact a national circulation at comparatively small cost. Manufacturers can use it to make any article sell and dealers will find it an inexpensive way to contact a live buying trade. Don't delay—send in your copy now for the next issue.

SODER 10,000 POUNDS Per Square Inch NO PRIORITY NEEDED

Recent tests reveal that Allen SILOY solder gives this strength on soldered joints.

SILOY contains little tin, requires no priority. It works with most common metals in some cases better than high tin-content solder.

SEND FOR SAMPLES AND COMPLETE INFORMATION OF ALLEN SILOY (NO PRIORITY SODER) TODAY!

L. B. ALLEN CO., Inc.
6702 Bryn Mawr Ave.
Chicago, Illinois



Save Money, Time and Muscle

Drill Concrete with the "Do-All" Combination Electric Hammer and Drill. Set expansion bolts 10 to 20 times faster than with hand tools. Drills concrete, brick, stone, metal, wood. Easy to maintain. Weighs 15 lbs. Drills to $1\frac{1}{2}$ " in concrete. 2400 blows per min. Bulletin 400. Phone Austin 2866.

WODACK ELECTRIC TOOL CORPORATION

4644 W. Huron St. Chicago, Ill.

QUICK DELIVERY!

MISCELLANEOUS

DRILLS
BENCH: 15" Canedy-Otto; 3 sp. Canedy-Otto B. B. BALL BEARING & SENSITIVE Leland Gif. fords, 7" overhang, No. 2 M.T.; 16" Sipp, No. 2 M.T.; 18" Cleveland;

EVELET MACHINES

Stimpson, Penn, Model B United Shoe;

PUNCHES—HAND

No. 4 Clough, 24" thr.; No. 56 Nia., 18" thr.;

PUNCHES—SINGLE END

No. A-18 & No. 62 Beloit; Rock River, 14" thr.; No. 2 Hilles & Jones Horizontal;

SHEARS

ANGLE: 6x6 $\frac{1}{2}$ " Long & Allstatter;

ROTARY: 12" 14 ga. Streine; 10" 14 ga. Ohl;

ROTARY: Quickwork 3/16" capacity, 60" Thr. 14 ga. $\frac{1}{2}$ " Marshalltown Bevel Shear.

SEND FOR OUR CATALOG 404

INTERSTATE MACHINERY CO., INC. — YARDS 5830

1433 W. PERSHING RD., CHICAGO, ILL.

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1942?

We'll be ready

SIDE BY SIDE in the plants of Minneapolis-Honeywell and its subsidiary, The Brown Instrument Company of Philadelphia, control research for war and control research for peace go on twenty-four hours a day. Our present job is to provide the nation with the necessary equipment for combat, for military and defense housing and for essential war industry. Out of this experience are coming developments in automatic controls for American industry and American homes that

will provide an effortless, scientific comfort and efficiency, for post-war living and working. To all who own or sell heating and air conditioning equipment, or who use industrial instruments, we say: "M-H and Brown Engineers are building, every day, every hour, for the war and for the future." Minneapolis-Honeywell Regulator Co., 2726 Fourth Ave. S., Minneapolis, Minn. In Canada: Toronto, Ontario. In Europe: London, England and Stockholm, Sweden.

MINNEAPOLIS-HONEYWELL
CONTROL *Systems*

**For
Dependable
Power**

**On War Industries'
Air Conditioning Installations
Look to CENTURY MOTORS**

They provide these advantages:

- 1.** High starting torque necessary to handle modern compressors under unusual conditions.
- 2.** Quiet starting, quiet acceleration, and quiet running at all times.
- 3.** Unusual freedom from electrical and mechanical vibration.
- 4.** Century's unique bearing bumpers reduce chatter from V-belt irregularities.
- 5.** Cushion base mountings isolate possible vibration from your installation (3 horsepower and smaller).

Selection of the proper Century Motor is an easy matter because of Century's extremely wide range of types and sizes, from fractional to 400 horsepower—all effective in solving the many problems of industrial air conditioning motor drives.

For complete information, call in your nearest Century Motor Specialist — his help may be valuable and he is always at your service.

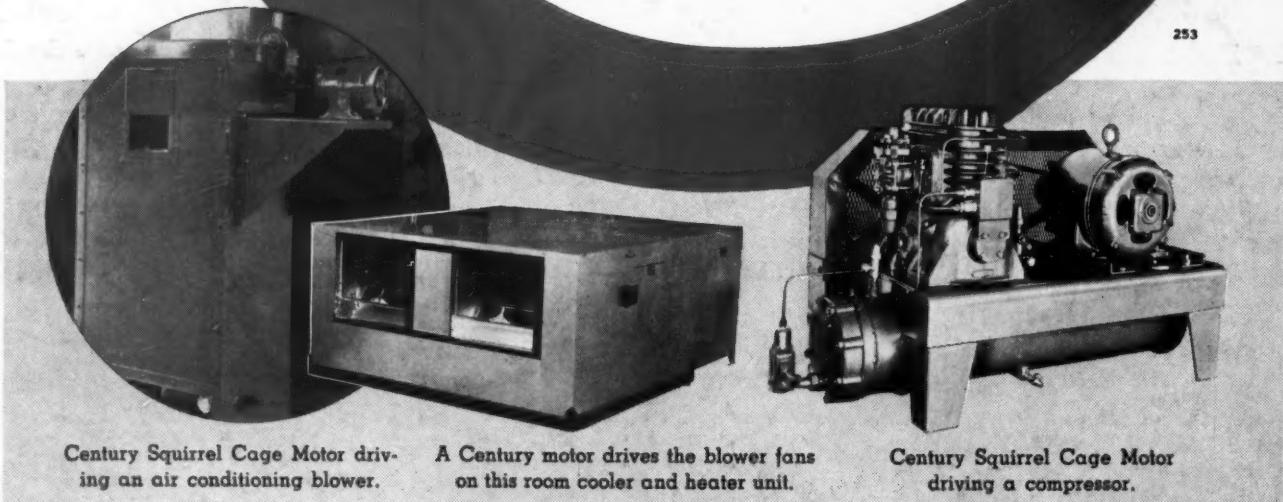
CENTURY ELECTRIC COMPANY



1806 Pine Street St. Louis, Missouri
Offices and Stock Points in Principal Cities

One of the Largest Exclusive Motor and Generator
Manufacturers in the World

253



Century Squirrel Cage Motor driving an air conditioning blower.

A Century motor drives the blower fans on this room cooler and heater unit.

Century Squirrel Cage Motor driving a compressor.